



CITY OF LINCOLN

Water Rate Study

Draft Report / May 31, 2018



June 6, 2018

Mr. Steve Ambrose, CPA
Director of Support Services
City of Lincoln
600 Sixth Street
Lincoln, CA 95648

Subject: Water Rate Study Report

Dear Mr. Ambrose,

Raftelis Financial Consultants, Inc. (Raftelis) is pleased to present this water rate study (Study) to the City of Lincoln. The Study involved a comprehensive review of the City's Financial Plan, user classifications and various rate structures. Analysis for the study was initially conducted in 2016 and 2017. Some additional analysis was conducted since then, at the City's request. We are confident that the analysis, based on the application of water rate industry-wide recognized Cost of Service principles, results in fair and equitable water rates for the City's customers. The report includes a brief Executive Summary followed by study assumptions and a detailed rate derivation in subsequent sections.

It was a pleasure working with you. We wish to express our thanks to you and other city staff members for your support during the study. We would also like to acknowledge and thank the participants of the Citizen's Water Rate Advisory Committee, led by Mr. Jerry Harner, City Treasurer, for their participation, good questions, and final recommendations which were used as inputs to the analysis and the chosen rate structure. As you are aware and at the City's direction, this report and the underlying analysis also incorporates several suggestions that were made by another group of interested citizens. These suggestions were presented to and approved by the City Council and by City staff. If you have any questions, please call me at (213) 327-4405, or Ms. Van Etten at (510) 813-8704.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.



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1 EXECUTIVE SUMMARY

1.1 BACKGROUND

In Early 2017, the City of Lincoln (City) contracted with Raftelis Financial Consultants (Raftelis) to conduct a Water Rate Study (Study) including an updated five-year Financial Plan, a Cost of Service analysis, and a redesigned and equitable rate structure. This report presents the Financial Plan, the Cost of Service analysis, and the resulting rates for implementation on October 1st, 2018.

This Executive Summary describes the rate study process, methodology, and recommendations for the City's water rate structure and water rates. The City's last rate adjustment was effective on July 1, 2016. The City wishes to establish fair and equitable rates that:

- » Meet the City's fiscal needs in terms of operational expenses, reserve goals and capital investment to maintain the system;
- » Proportionately allocate the costs of providing service in accordance with California Constitution article XIII D, section 6 (commonly referred to as Proposition 218).

1.2 PROCESS

Raftelis first developed a Financial Plan for the City, which set forth the total revenue adjustments needed to meet capital investment, operational expenses and debt service proposed during the five-year study period. After developing the Financial Plan, Raftelis performed a Cost of Service analysis to determine the rates based on the selected Financial Plan.

Raftelis met with City staff to discuss study goals. At the City's request, Raftelis met four times with an ad hoc Citizen's Water Rate Advisory Committee (Committee) that was formed to review the process and to make suggestions regarding key inputs to the Financial Plan as well as the structure of the resulting rates. The Committee's resulting recommendations were also presented in a public workshop with the City Council. Several other suggestions made by another group of interested citizens were incorporated into a slightly revised analysis at the direction of City Council and City staff.

The proposed rate consists of a uniform volumetric rate for all customers, as well as a monthly service charge. The monthly service charge is designed to primarily collect costs that are relatively fixed, including such things as billing and customer service costs, as well as extra capacity related costs. (Extra capacity related costs include costs such as Max-Day and Max-Hour: these are costs associated with operating the system during peak events.) In this case the monthly service cost also includes a portion of the City's purchased water costs. The volumetric rate is calculated for the City of Lincoln to recover the remaining costs of purchasing water as well other costs associated with supply.

1.3 METHODOLOGY

The water rates were developed using Cost of Service principles set forth by the American Water Works Association M1 Manual titled *Principles of Water Rates, Fees and Charges* (AWWA M1 Manual). This methodology is described in detail in Sections 5 and 6 of this report.

1.4 RESULTS

Table 1-1 shows the yearly revenue adjustments for the next five years. The proposed revenue adjustments reflect a decrease in the revenue requirement in the first year (Fiscal Year 2019) followed by no rate increases for the next four years. The percentages shown in Table 1-1 are the yearly changes in rate revenue required to maintain a financially viable water utility and to accomplish the chosen level of capital repair and replacement (R&R) and other necessary capital improvements.

Table 1-1: Proposed Water Revenue Adjustments

Effective Date	Proposed Water Revenue Adjustments
September 2018 (FY 2019)	-6.3 percent
July 2019 (FY 2020)	0.0 percent
July 2020 (FY 2021)	0.0 percent
July 2021 (FY 2022)	0.0 percent
July 2022 (FY 2023)	0.0 percent

Factors Affecting Revenue Adjustments

The following items affect the City's revenue requirement (i.e., costs) and thus its water rates. The City's expenses include Operation and Maintenance (O&M) expenses and capital expenses.

- » **Water Purchase Expense:** The City purchases most of its water, roughly 90% of it, from Placer County Water Agency (PCWA). The City's water purchase expenses are expected to grow by roughly 4% per annum over the study period. Water Purchases represent nearly 71% of total operating expenses in FY 2018.
- » **O&M expenses:** Overall, the City's other O&M expenses are expected to increase just under 7% annually from FY 2019 through FY 2023.
- » **Water System Capital Investment:** Based on recommendations from the ad hoc Citizen's Water Rate Advisory Committee (Committee) after considering various options presented by the City Engineer, the City anticipates spending an average of \$4,400,000 on capital improvements annually from FY 2019 through FY 2023. This level of capital improvement spending is projected to bring the City current on needed repairs to pipeline infrastructure within approximately ten years.

Proposed Water Rates

The City's proposed water service rates are comprised of two components: (1) a monthly service charge, and (2) a quantity or consumption charge. The monthly service charge is a fixed charge based on the size of the meter serving a property. It has been calculated to recover the City's current fixed costs, such as the costs of billing and collections, customer service, meter reading, and meter maintenance (all of which do not vary with water use), as well as a portion of the City's purchased water cost. The monthly service charge also collects extra capacity related costs, and costs related to the City's capital improvement plan. The volumetric rate recovers all remaining costs and is applied per 1,000 gallons of water (kgal).

Table 1-2 shows the current and FY 2019 proposed charges for the monthly service charge by meter size. The proposed meter charge is reduced from the current charge. The meter charges in the next four years will remain unchanged (0.0% annual increase, see Table 1-1).

Table 1-2: Current and Proposed Monthly Service Charges

Meter Size	FY 2018 Monthly Charge	Proposed FY 2019 Monthly Charge
3/4"	\$34.35	\$32.89
1"	\$51.53	\$54.81
1.5"	\$171.77	\$131.54
2"	\$274.83	\$208.27
3"	\$549.65	\$476.82
4"	\$858.83	\$822.09
6"	\$1,374.16	\$1,753.79
8"	\$2,442.87	\$3,069.14

Table 1-3 shows the current tier widths for all customers. The City bills its customers per kgal of water consumed. The proposed rate structure does away with the current tier structure in favor of a uniform volumetric (commodity) rate, that is, all units of water will be sold at the same rate. The current tier widths under the current five-tier structure are shown in Table 1-3 for comparison purposes. The rates themselves are shown later in Table 3-6.

Table 1-3: Current Tier Widths

Class Designation	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Non-Residential 3/4"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	>175 kgals	
Non-Residential 1"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	>175 kgals	
Non-Residential 1.5"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	>175 kgals	
Non-Residential 2"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 280 kgals	>280 kgals
Non-Residential 3"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 560 kgals	>560 kgals
Non-Residential 4"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 875 kgals	>875 kgals
Non-Residential 6"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 1,750 kgals	>1,750 kgals
Non-Residential 8"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 2,485 kgals	>2,485 kgals
Multi-Family Residential 3/4"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 35 kgals	>35 kgals
Multi-Family Residential 1"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 88 kgals	>88 kgals
Multi-Family Residential 1.5"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 175 kgals	>175 kgals
Multi-Family Residential 2"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 280 kgals	>280 kgals
Multi-Family Residential 3"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 560 kgals	>560 kgals
Multi-Family Residential 4"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 875 kgals	>875 kgals
Multi-Family Residential 6"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 1,750 kgals	>1,750 kgals
Single Family Residential	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 35 kgals	>35 kgals
Verdera Village 20	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 53 kgals	>53 kgals
Verdera Village 13-17, 19	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 88 kgals	>88 kgals

Table 1-4 shows the proposed commodity or volumetric rate. Raftelis recommends implementing a uniform volumetric rate for all customers. The derived rates are fully documented in Sections 5 and 6 of this report. As with the fixed charges, there are no rate increases scheduled across the Study period.

Table 1-4: Proposed Volumetric Rates (\$/kgal)

Class	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Uniform Rate	\$2.37	\$2.37	\$2.37	\$2.37	\$2.37

*kgal = One thousand gallons

Together, the two components of the City’s proposed water service fees are structured to recover the costs of providing water service, to maintain financial stability and to maintain affordability for ratepayers.

2 WATER SYSTEM

This section briefly describes the water system and ratepayer base information. The City provided customer account and water use data for fiscal year (FY) 2016. FY 2016 was used as the base year for water use projections as it was the most recent fiscal year for which both complete water consumption use and actual (final) financial data was available at the time the initial analysis was conducted. Although Raftelis is suggesting a much simpler meter charge with uniform volumetric rate structure, much of the underlying analysis considers the City's existing multi-tiered rate structure for the purposes of reconciling actual financial data and for comparison to the proposed rate structure presented later in the report.

2.1 WATER SOURCES AND SYSTEM FACILITIES

The City's water enterprise serves the City of Lincoln in Placer County, California. The enterprise provides potable water service to a population of approximately 46,000 customers in the City through over 18,000 connections. On an annual basis, the City delivers between 6,000 and 9,000 acre-feet of potable water. Total sales in FY 2016 were 6,548 AF or 2,133,594 kgal. Placer County Water Agency (PCWA) is the primary source of the City's water, providing roughly 90% of the City's potable water. The remaining 10% is obtained through groundwater pumping. Per the City's Urban Water Management Plan, additional water could be available through the Nevada Irrigation District, if necessary, however this source is currently not available.

2.2 NUMBER OF ACCOUNTS

Table 2-1 shows the estimated number of potable water accounts by meter size for FY 2016 and FY 2017. Raftelis projected the number of accounts in out-years by escalating the FY 2017 account data provided by the City using the growth factors described in Section 2.3. The number of accounts are used to forecast the amount of fixed revenue the City will receive from the monthly service charge.

Table 2-1: Potable Water Accounts by Meter Size (Actual - FY 2016 and FY 2017)

Meter Size	FY 2016	FY 2017
3/4"	15,238	15,270
1"	2,454	2,739
1.5"	122	140
2"	57	69
3"	19	19
4"	6	6
6"	1	1
8"	0	0
Total	17,897	18,244

2.3 ACCOUNT AND WATER USE GROWTH ASSUMPTIONS

The revenue calculated for each fiscal year in the Financial Plan is a function of the number of accounts, account growth, water use, and existing rates. The City has seen robust growth since 2000, Raftelis worked with City Staff to determine estimated account growth in future years. Assumptions of account growth and water sales in both acre feet (AF) and kgals are shown in Table 2-2. Like most water purveyors in California, the City had realized reduced water use due to conservation efforts during the recent drought. City Staff expects there to be a rebound in water usage now that the declared drought emergency has ended. Table 2-2 shows the recent and assumed water sales in kgals and acre-feet. The “Year to Year Change” line shows that fiscal year’s consumption in relation to the previous fiscal year. For example, FY 2018 shows an anticipated 23.7% increase in water use relative to FY 2017 usage.

It is expected that the City will add roughly 200 accounts per year, this is captured by the 1.1% Account Growth (All Classes) in Table 2-2. The 1.9% growth in FY 2017 stems from the City’s actual growth in accounts by meter size relative to FY 2016, and which is slightly higher than the expected annual increase going forward, per the City.

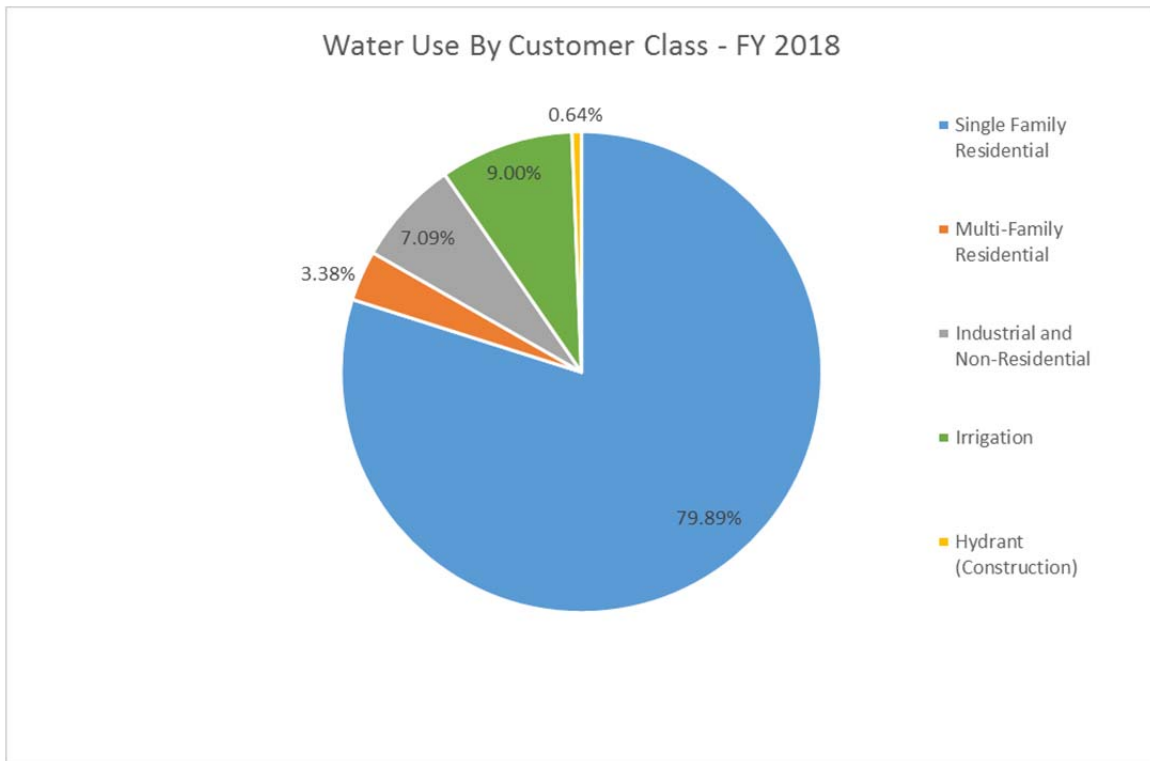
Table 2-2: Account Growth and Water Use Assumptions

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Account Growth (All Classes)	1.9%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Water Sold (kgal)	2,346,953	2,902,139	3,047,246	3,199,609	3,359,589	3,527,568	3,637,699
Water Sold (Acre Feet)	7,203	8,907	9,352	9,820	10,311	10,826	11,164
Year to Year Change		23.7%	5.0%	5.0%	5.0%	5.0%	3.1%

2.4 WATER USE

The pie chart in Figure 2-1 shows the percentage of total projected water use by customer class for FY 2018. Total projected water sales were 2,902,139 thousand gallons (kgal) or 8,907 AF.

Figure 2-1: Water Use by Customer Class - FY 2018



3 FINANCIAL PLAN

This section describes the assumptions used in projecting operating and capital expenses as well as reserve coverage requirements for the next five fiscal years (Fiscal years 2019 – 2023). These assumptions determine the overall revenue adjustments and total amount of revenue required from rates. The revenue covers operating and maintenance (O&M) and capital expenses as well as reserve funding. Revenue adjustments represent the average rate increase for the City as a whole; rate changes for individual customers will depend on the Cost of Service analysis described in the following chapter.

Financial plan assumptions were provided by and discussed in detail with City staff. Key assumptions were also discussed with the Citizen’s Water Rate Advisory Committee.

3.1 INFLATIONARY AND OTHER ASSUMPTIONS

To ensure that future costs are reasonably projected, Raftelis worked with the City to generate assumptions regarding inflationary factors including general and salary inflation and water cost inflation as shown in Table 3-1. The inflationary factors shown in Table 3-1 were then applied to the budgeted cost estimates for each cost category for FY 2019 and the following fiscal years.

Table 3-1: Inflationary Assumptions

INFLATION FACTORS	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
General	3.0%	3.0%	3.0%	3.0%	3.0%
Salary	5.0%	5.0%	5.0%	5.0%	5.0%
Part Time Salaries	3.0%	3.0%	3.0%	3.0%	3.0%
PERS Unfunded	15.6%	15.7%	11.1%	12.5%	10.0%
Benefits	8.0%	8.0%	8.0%	8.0%	8.0%
SUI	1.0%	1.0%	1.0%	1.0%	1.0%
FICA	5.0%	5.0%	5.0%	5.0%	5.0%
Chemicals, Fuel, Oil, Supplies	4.0%	4.0%	4.0%	4.0%	4.0%
Utilities	10.0%	10.0%	10.0%	10.0%	10.0%
Communications	5.0%	5.0%	5.0%	5.0%	5.0%
Insurance	5.0%	5.0%	5.0%	5.0%	5.0%
Water Supply Cost Increases	3.0%	3.0%	3.0%	3.0%	3.0%
Engineering	10.0%	10.0%	10.0%	10.0%	10.0%
No Escalation	0.0%	0.0%	0.0%	0.0%	0.0%

3.2 FINANCIAL PLAN

The assumptions shown in Table 3-1 were incorporated into the five-year Financial Plan. To develop the Financial Plan, Raftelis projected annual expenses and revenues, modeled reserve balances and transfers between funds, and added planned capital expenditures. The City has no existing debt associated with facilities for the provision of water facilities and is not anticipating financing any capital improvements. Therefore, it was not necessary to calculate debt payments or debt service coverage ratios for this study. This section of the report provides a discussion of projected revenue, O&M expenses, the Capital Improvement Plan (CIP), and reserve funding under existing rates and the revenue adjustments needed to ensure fiscal sustainability.

3.3 CURRENT RATE REVENUE

The City's rate structure consists of two different types of charges: fixed charges, known as a monthly service charge and variable charges, which are dependent on water use, known as the commodity rate. The City's current commodity rate structure has between four and five tiers depending on customer class and meter size. The City's current monthly service charges by meter size, multi-tiered commodity rate structure, and commodity rates by meter size and tier are shown in the following subsections. Although the proposed rate structure will differ significantly from the current structure, Raftelis presents and analyzes the existing rate structure in the following sections for the purposes of identifying current revenue requirements and for contrast and comparison to the proposed rate structure and rates

3.3.1 FIXED CHARGE REVENUE

The City collects a fixed monthly service charge from its customers based on meter size. The FY 2018 rates were used to project future revenues since the City had previously adopted these rates and these rates would be implemented in the absence of the adoption of this updated Study. The proposed monthly service charges are shown in Table 3-2 below. Hydrant meters are 3" construction meters which are charged a flat \$50/ month meter charge. These charges are included with other meter service charges.

Table 3-2: FY 2018 Monthly Service Charges by Meter Size

Meter Size	FY 2018
3/4"	\$34.35
1"	\$51.53
1.5"	\$171.77
2"	\$274.83
3"	\$549.65
4"	\$858.83
6"	\$1,374.16
8"	\$2,442.87
Hydrant	\$50.00

In order to determine annual revenues from the monthly service charges, Raftelis multiplied the monthly service charges by the number of accounts in each meter size in each year and multiplied by twelve. As mentioned in Section 2.2, the number of accounts is projected to grow by about 200 accounts per year through the course of the Study period. The number of accounts for the Study period (FY 2018 – FY 2023) is shown in Table 3-3. The account growth shown in FY 2018 (relative to FY 2016's account totals shown in Table 2-1) is more than 500 accounts, however, these numbers are not solely projections but rather FY 2017 totals provided by the City and then projected upwards. It is expected that most of the accounts added over the course of the study period will be added in 1" and 1.5" meters, with some in the 2" meter category. This is because of fire flow requirements which restrict the addition of new meters smaller than 1".

Table 3-3: Meters through FY 2023 by Meter Size

Meter Size	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
3/4"	15,270	15,270	15,270	15,270	15,270	15,270
1"	2,937	3,137	3,339	3,544	3,751	3,960
1.5"	142	144	146	148	150	152
2"	70	71	72	73	74	75
3"	19	19	19	19	19	19
4"	6	6	6	6	6	6
6"	1	1	1	1	1	1
8"	0	0	0	0	0	0
Hydrant	35	35	35	35	35	35
Total	18,480	18,683	18,888	19,096	19,306	19,518

Referring to the monthly fixed rates and account totals in Table 3-2 and Table 3-3 respectively, the monthly fixed charge revenue from all accounts with a 3/4" meter for FY 2018 is calculated as follows:

$$\text{fixed charge rate for } 3/4" \text{ meter} \times \text{number of accounts with } 3/4" \text{ meter} \times 12 \text{ months}$$

$$\$34.35 \times 15,270 \times 12 = \$6,294,294$$

The same calculation is repeated for all meter sizes and then added together to determine the total fixed charge revenue for all customers. The result of this calculation and the sum of all fixed revenue through FY 2023 is shown in Table 3-4.

Table 3-4: Fixed Revenue through FY 2023

Meter Size	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
3/4"	\$6,294,294	\$6,294,294	\$6,294,294	\$6,294,294	\$6,294,294	\$6,294,294
1"	\$1,816,123	\$1,939,795	\$2,064,704	\$2,191,468	\$2,319,468	\$2,448,706
1.5"	\$292,696	\$296,819	\$300,941	\$305,064	\$309,186	\$313,308
2"	\$230,857	\$234,155	\$237,453	\$240,751	\$244,049	\$247,347
3"	\$125,320	\$125,320	\$125,320	\$125,320	\$125,320	\$125,320
4"	\$61,836	\$61,836	\$61,836	\$61,836	\$61,836	\$61,836
6"	\$16,490	\$16,490	\$16,490	\$16,490	\$16,490	\$16,490
8"	\$0	\$0	\$0	\$0	\$0	\$0
Hydrant	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Total	\$8,858,616	\$8,989,709	\$9,122,038	\$9,256,222	\$9,391,643	\$9,528,301

3.3.2 COMMODITY CHARGE REVENUE

In addition to fixed charge revenue from the monthly service charge, the City also collects revenue based on water use. The City currently has a tiered commodity rate structure for all customers. The tier widths (and number of tiers) for customers varies based on meter size and customer class. Non-residential customers with meters 1.5" and below have a 4-tiered rate, while all other customers have a 5-tiered rate. The tier widths for all customers besides Hydrant customers are shown in Table 3-5, below. Hydrant customers pay a bulk water rate of \$11.01 per kgal.

Table 3-5: Current Commodity Rate Structure

Class Designation	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Non-Residential 3/4"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	>175 kgals	
Non-Residential 1"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	>175 kgals	
Non-Residential 1.5"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	>175 kgals	
Non-Residential 2"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 280 kgals	>280 kgals
Non-Residential 3"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 560 kgals	>560 kgals
Non-Residential 4"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 875 kgals	>875 kgals
Non-Residential 6"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 1,750 kgals	>1,750 kgals
Non-Residential 8"	0 to 35 kgals	35 to 88 kgals	88 to 175 kgals	175 to 2,485 kgals	>2,485 kgals
Multi-Family Residential 3/4"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 35 kgals	>35 kgals
Multi-Family Residential 1"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 88 kgals	>88 kgals
Multi-Family Residential 1.5"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 175 kgals	>175 kgals
Multi-Family Residential 2"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 280 kgals	>280 kgals
Multi-Family Residential 3"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 560 kgals	>560 kgals
Multi-Family Residential 4"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 875 kgals	>875 kgals
Multi-Family Residential 6"	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 1,750 kgals	>1,750 kgals
Single Family Residential	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 35 kgals	>35 kgals
Verdera Village 20	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 53 kgals	>53 kgals
Verdera Village 13-17, 19	0 to 5 kgals	5 to 14 kgals	14 to 21 kgals	21 to 88 kgals	>88 kgals

Rates for customers vary by customer class and by meter size and are shown in Table 3-6. Table 3-6 shows the current rates for FY 2018.

Table 3-6: Current Commodity Rates FY 2018, in \$/kgal

	FY 2018
Non-Residential, 3/4" Meters	
Tier 1	\$1.60
Tier 2	\$5.63
Tier 3	\$7.38
Tier 4	\$9.01
Tier 5	\$0.00
Non-Residential, 1" Meters	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$7.38
Tier 4	\$9.01
Tier 5	\$0.00
Non-Residential, 1.5" Meters	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$9.01
Tier 5	\$0.00
Non-Residential, >1.5" Meters	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$5.99
Tier 5	\$9.01
Irrigation, 3/4" Meters	
Tier 1	\$1.60
Tier 2	\$5.63
Tier 3	\$7.38
Tier 4	\$9.01
Tier 5	\$0.00
Irrigation, 1" Meters	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$7.38
Tier 4	\$9.01
Tier 5	\$0.00

	FY 2018
Irrigation, 1.5" Meters	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$9.01
Tier 5	\$0.00
Irrigation, >2" Meters	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$5.99
Tier 5	\$9.01
SFR Consumption	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$4.36
Tier 5	\$4.36
MFR Consumption	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$4.36
Tier 5	\$4.36
Verdera Villages 13-17	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$4.36
Tier 5	\$4.36
Verdera Village 20	
Tier 1	\$1.60
Tier 2	\$2.61
Tier 3	\$4.36
Tier 4	\$4.36
Tier 5	\$4.36
Construction Hydrant	
Bulk Water	\$11.01

Next, Raftelis calculated tiered usage based on FY 2016 consumption data and projected it for FY 2017 and FY 2018 and across the Study period. The results are shown, presented in kgal in Table 3-7.

Table 3-7: Projected Water Consumption by Tier Across the Study Period

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Non-Residential, 3/4" Meters						
Tier 1	17,564	18,442	19,364	20,333	21,349	22,016
Tier 2	1,818	1,908	2,004	2,104	2,209	2,278
Tier 3	1,037	1,089	1,144	1,201	1,261	1,300
Tier 4	209	219	230	242	254	262
Tier 5	0	0	0	0	0	0
Non-Residential, 1" Meters						
Tier 1	15,887	16,681	17,515	18,391	19,310	19,913
Tier 2	7,541	7,918	8,314	8,729	9,166	9,452
Tier 3	2,621	2,752	2,890	3,034	3,186	3,286
Tier 4	216	226	238	250	262	270
Tier 5	0	0	0	0	0	0
Non-Residential, 1.5" Meters						
Tier 1	21,000	22,050	23,153	24,310	25,526	26,323
Tier 2	12,172	12,781	13,420	14,091	14,795	15,257
Tier 3	6,740	7,077	7,431	7,802	8,192	8,448
Tier 4	11,466	12,039	12,641	13,273	13,937	14,372
Tier 5	0	0	0	0	0	0
Non-Residential, >1.5" Meters						
Tier 1	27,178	28,537	29,964	31,462	33,035	34,067
Tier 2	22,175	23,283	24,448	25,670	26,954	27,795
Tier 3	18,860	19,803	20,793	21,833	22,924	23,640
Tier 4	29,567	31,045	32,598	34,227	35,939	37,061
Tier 5	9,675	10,159	10,667	11,200	11,760	12,128
Irrigation, 3/4" Meters						
Tier 1	4,733	4,969	5,218	5,479	5,753	5,932
Tier 2	1,786	1,875	1,969	2,067	2,171	2,239
Tier 3	338	355	373	391	411	424
Tier 4	0	0	0	0	0	0
Tier 5	0	0	0	0	0	0

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Irrigation, 1"						
Meters						
Tier 1	8,237	8,649	9,082	9,536	10,013	10,325
Tier 2	6,866	7,210	7,570	7,949	8,346	8,607
Tier 3	4,988	5,238	5,500	5,775	6,063	6,253
Tier 4	3,216	3,377	3,546	3,723	3,909	4,031
Tier 5	0	0	0	0	0	0
Irrigation, 1.5"						
Meters						
Tier 1	10,273	10,787	11,326	11,893	12,487	12,877
Tier 2	10,512	11,038	11,590	12,169	12,778	13,177
Tier 3	9,161	9,619	10,100	10,605	11,135	11,482
Tier 4	7,449	7,821	8,212	8,623	9,054	9,337
Tier 5	0	0	0	0	0	0
Irrigation, >1.5" Meters						
Tier 1	10,118	10,624	11,155	11,713	12,299	12,683
Tier 2	13,099	13,754	14,442	15,164	15,922	16,419
Tier 3	16,616	17,447	18,319	19,235	20,197	20,828
Tier 4	18,862	19,806	20,796	21,836	22,927	23,643
Tier 5	15,207	15,967	16,765	17,604	18,484	19,061
SFR Consumption						
Tier 1	1,175,856	1,234,648	1,296,381	1,361,200	1,429,260	1,473,881
Tier 2	795,649	835,432	877,203	921,064	967,117	997,310
Tier 3	159,872	167,865	176,259	185,072	194,325	200,392
Tier 4	70,891	74,436	78,158	82,066	86,169	88,859
Tier 5	17,005	17,855	18,748	19,685	20,670	21,315
MFR Consumption						
Tier 1	7,476	7,850	8,243	8,655	9,087	9,371
Tier 2	12,427	13,049	13,701	14,386	15,106	15,577
Tier 3	8,263	8,677	9,110	9,566	10,044	10,358
Tier 4	64,467	67,691	71,075	74,629	78,361	80,807
Tier 5	5,446	5,718	6,004	6,304	6,619	6,826
Verdera Villages 13-17, 19						
Tier 1	9,570	10,048	10,551	11,078	11,632	11,996
Tier 2	13,351	14,018	14,719	15,455	16,228	16,734
Tier 3	8,188	8,597	9,027	9,479	9,952	10,263
Tier 4	31,868	33,462	35,135	36,892	38,736	39,945
Tier 5	3,116	3,272	3,435	3,607	3,787	3,906

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Verdera Village 20						
Tier 1	7,219	7,580	7,959	8,357	8,775	9,049
Tier 2	9,564	10,043	10,545	11,072	11,626	11,989
Tier 3	5,635	5,917	6,213	6,524	6,850	7,064
Tier 4	9,977	10,475	10,999	11,549	12,127	12,505
Tier 5	896	941	988	1,037	1,089	1,123
City Irrigation						
Total						
Consumption	119,670	125,653	131,936	138,533	145,460	150,001
Construction Hydrant						
Bulk Water	18,544	19,471	20,444	21,467	22,540	23,244

The commodity charge revenues shown for FY 2018 through FY 2023, shown in Table 3-8, are calculated by multiplying the projected consumption found in Table 3-7 by the rates found in Table 3-6. For example, the commodity charge revenue from Construction Hydrant usage for FY 2018 can be calculated as follows:

$$\text{Projected Construction Hydrant Usage for FY 2018} \times \text{Bulk Water Rate} \\ 18,544 \times \$11.01 = \$204,166$$

The same calculation is repeated for all tiers and the other customer classes to determine the total commodity charge revenue for each year. Table 3-8 also shows a summary of usage in all customer classes. Also, residential consumption in Tiers 4 and 5 is billed at the Tier 3 rate starting in FY 2017. The calculations are done this way because the City Council froze rates above Tier 3 for residential customers in April of 2017. The current commodity rates were shown above in Table 3-6. FY 2018 rates are used across the study period to estimate rate revenue with a revenue-neutral rate structure.

The numbers shown in Table 3-8 are rounded so the totals may not match exactly. Note that the projected increase in non-residential consumption in FY 2018 is actually much smaller than it is for the other classes. This is due to the City's largest Non-Residential customer, Sierra Pacific Industries, switching 80% of its usage to recycled water. FY 2017 projected Non-Residential was 187,955 kgals, representing an increase of just 9.5% rather than the overall 23.7% shown in Table 2-2.

Table 3-8: Consumption Totals and Revenues by Customer Class Across Study Period

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Volumetric Sales by Class						
Non-Residential Consumption	205,725	216,011	226,812	238,152	250,060	257,867
Irrigation Consumption	141,463	148,536	155,963	163,761	171,949	177,317
SFR Consumption	2,219,273	2,330,237	2,446,749	2,569,086	2,697,541	2,781,758
MFR Consumption	98,080	102,985	108,134	113,540	119,217	122,939
Verdera Village 13-17, 19	66,093	69,397	72,867	76,511	80,336	82,844
Verdera Village 20	33,292	34,956	36,704	38,539	40,466	41,729
Bulk Water	18,544	19,471	20,444	21,467	22,540	23,244
Total Sales	2,902,139	3,047,246	3,199,609	3,359,589	3,527,568	3,637,699
Volumetric Sales Revenue						
Non-Residential Revenue	\$600,670	\$630,703	\$662,238	\$695,350	\$730,118	\$752,912
Irrigation Revenue	\$473,631	\$497,312	\$522,178	\$548,287	\$575,701	\$593,675
SFR Revenue	\$5,038,283	\$5,290,197	\$5,554,707	\$5,832,443	\$6,124,065	\$6,315,258
MFR Revenue	\$385,248	\$404,511	\$424,736	\$445,973	\$468,272	\$482,891
Verdera Villages 13-17, 19 Revenue	\$238,387	\$250,307	\$262,822	\$275,963	\$289,761	\$298,807
Verdera Village 20 Revenue	\$108,488	\$113,912	\$119,608	\$125,588	\$131,868	\$135,985
Construction Revenue	\$204,166	\$214,374	\$225,093	\$236,348	\$248,165	\$255,913
Total Sales	\$7,048,873	\$7,401,317	\$7,771,383	\$8,159,952	\$8,567,949	\$8,835,441

In addition to the above revenues, the water enterprise also has several sources of non-operating revenue. These are shown below in Table 3-9.

Table 3-9: Non-Operating Revenues Across Study Period

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
UB Account Processing Fee	\$31,209	\$31,521	\$31,836	\$32,155	\$32,476	\$32,801
Water Reconnection Charges	\$173,417	\$175,151	\$176,903	\$178,672	\$180,458	\$182,263
Collect Agency Interest Earned	\$400	\$400	\$400	\$400	\$400	\$400
Other Revenue	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
WPUSD Share City Hall Water	\$2,800	\$2,800	\$2,800	\$2,800	\$2,800	\$2,800
Total Non-Operating Revenue	\$212,826	\$214,872	\$216,939	\$219,026	\$221,135	\$223,264

3.4 UTILITY EXPENSES

The City's expenses include O&M expenses, capital expenses, and debt service payments. Section 3.4 discusses the details of each of these expenses.

3.4.1 TOTAL O&M BUDGET

Water Purchase Cost

In FY 2018 PCWA, the agency the City purchases the majority of its water from restructured its rates. This structural shift resulted in a primarily fixed cost structure. The City will pay PCWA a monthly fixed charge based on the units of capacity it has purchased from PCWA, measured in EDUs, and a variable charge based on purchased water. The current adopted rates that PCWA assesses are \$31.87 per month per EDU and \$0.40 per hundred cubic foot (CCF) of water.¹ These costs were escalated at 3% annually from FY 2019 to FY 2023. The City has purchased 16,089 EDUs from PCWA.

The City obtains roughly 10% of its water from pumping groundwater. This factor is incorporated in the purchased water costs. Moreover, the City has a roughly 10.0% water loss factor, which increases its necessary water purchases.

Table 3-10: Summary of Projected Purchased Water Cost Expenses

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Water Sales (CCF)	3,879,865	4,073,859	4,277,552	4,491,429	4,716,001	4,863,234
Purchases Necessary (CCF)	4,451,429	4,674,000	4,907,700	5,153,085	5,410,740	5,579,663
% of Supply Met By Source						
Groundwater	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
PCWA	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
Amount of Supply Met By Source (CCF)						
Groundwater	445,143	467,400	490,770	515,309	541,074	557,966
PCWA	4,006,286	4,206,600	4,416,930	4,637,777	4,869,666	5,021,697
Monthly Capacity Charge per Unit of Capacity	\$31.87	\$32.83	\$33.81	\$34.83	\$35.87	\$36.95
Total Units of Capacity	16,089	16,089	16,089	16,089	16,089	16,089
Annual Capacity Charge	\$6,153,077	\$6,337,669	\$6,527,800	\$6,723,634	\$6,925,343	\$7,133,103
Charge per CCF of Delivered Water	\$0.40	\$0.41	\$0.42	\$0.44	\$0.45	\$0.46
Water Delivered	4,006,286	4,206,600	4,416,930	4,637,777	4,869,666	5,021,697
Annual Commodity Charge	\$1,602,514	\$1,733,119	\$1,874,369	\$2,027,130	\$2,192,341	\$2,328,609
Total PCWA Charge	\$7,755,592	\$8,070,789	\$8,402,168	\$8,750,763	\$9,117,683	\$9,461,712

¹ One CCF is 748 gallons, or .748 kgal.

O&M Expenses

The City provided Raftelis with its water enterprise budget in FY 2017 and FY 2018. In order to project the City's O&M expenses in future years, Raftelis used the escalation percentages shown in Table 3-1 to project future expenses. The detailed O&M budget and projected budget are shown in the Appendix. A Summary of the City's projected O&M budget is shown by fiscal year in Table 3-11. FY 2018 is the year with which rates were calculated (this is known as the test year) and FY 2017 is shown for comparison. The Financial Plan Study period is from FY 2018 to 2023. The O&M budget incorporates the inflationary factors discussed in Section 3.1. A summary of the O&M budget is shown by category below.

Table 3-11: Summary of Projected Water O&M Expenses

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
O&M Expenses						
Public Services - Operations						
Water Purchases	\$7,755,592	\$8,070,789	\$8,402,168	\$8,750,763	\$9,117,683	\$9,461,712
Other Public Services -						
Operations	\$1,743,464	\$1,849,498	\$1,964,920	\$2,085,766	\$2,218,604	\$2,354,289
6870-Streets	\$100,500	\$105,525	\$110,801	\$116,341	\$122,158	\$128,266
Support Services - Utility						
Billing	\$243,485	\$257,860	\$273,292	\$288,842	\$305,716	\$323,026
City Engineer	\$78,449	\$82,475	\$86,714	\$91,177	\$95,876	\$100,825
Public Services -						
Administration	\$165,856	\$175,075	\$184,896	\$194,977	\$205,785	\$216,998
City Attorney	\$26,000	\$36,750	\$38,588	\$40,517	\$42,543	\$44,670
Finance - Retiree Health						
Benefits	\$32,117	\$34,686	\$37,461	\$40,458	\$43,695	\$47,190
Public Services - Facilities	\$0	\$0	\$0	\$0	\$0	\$0
Allocations, Transfers & Other						
Expenses	\$774,707	\$843,290	\$918,464	\$1,000,881	\$1,091,257	\$1,190,379
Total O&M Budget	\$10,920,169	\$11,455,949	\$12,017,303	\$12,609,722	\$13,243,317	\$13,867,355

3.4.2 CAPITAL IMPROVEMENT PLAN

For this rate study, the City provided Raftelis with three different plans for Waterline repair and replacement (R&R) in the Lincoln downtown area. These three plans were the Low Project Delivery plan, the Medium Project Delivery plan, and the High Project Delivery plan. The plans included the same R&R projects but delivered at different completion dates. The Low Project Delivery plan would complete the R&R in 16 years, the Medium Project Deliver plan would complete the R&R in 10 years, and the High Project Delivery plan would complete the R&R in 5 years. After several meetings and discussions with City Staff and at the recommendation of the Citizen's Rate Study Ad Hoc Committee, the City chose to go with the Medium Project Delivery Plan. This plan is to be funded in part by the existing balance in Fund 711, the City's Water Capital Fund, and balance transfers from Fund 710, the City's Water Operating Fund.

At the direction of City Council and City staff, further modifications were made to the CIP plan based on input received from a citizen ratepayer’s interest group. The projected CIP spending shown below reflects that input and CIP costs do not include a construction cost inflation assumption. The proposed revenue adjustments reflect rates necessary to meet the dollar amounts shown, which may or may not fully fund all of the required improvements to meet the desired 10-year R&R schedule for pipeline replacement, but which will allow for significant progress to be made towards that goal.

Table 3-12: Projected Capital Improvement Spending

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Total	\$8,298,000	\$5,700,000	\$3,725,000	\$3,600,000	\$5,600,000	\$3,450,000

3.4.3 EXISTING AND PROPOSED DEBT SERVICE

The City’s Water Enterprise currently has no outstanding debt and both the current and proposed Financial Plan assumes no additional debt issuances.

3.5 RATE REPAYMENT

As a result of a negotiated process as well as additional discussions, the City Council elected to repay \$5,993,444 in previously collected revenue through both refunds and credits. Raftelis modeled this by subtracting the aforementioned amount from the City’s Water Operating Fund (Fund 710) as a one-time cost in FY 2018.

3.6 RESERVE TARGETS

Currently, the City maintains two reserve funds: an operating reserve fund, and a capital reserve fund.

Operating Reserve – The Operating Reserve is used primarily to meet ongoing cash flow requirements. Based on recommendations by the Citizen’s Water Rate Committee as accepted by the City Council, the target for the City’s Operating Reserve is set at 25% (three months) of budgeted Operating Expenses.²

Capital Reserve – The Capital Reserve is used to cover any unexpected and unplanned infrastructure repairs and replacements not included in the budget. The Citizen’s Water Rate Committee recommended that the City maintain a Capital Reserve equivalent to one year’s CIP spending based on the study period’s average CIP expenditure, roughly \$4,000,000. Raftelis used this recommended reserve target to develop the rate adjustments shown in this Financial Plan. The target for Fund 711 is \$4 million.

² The current Operating fund balance (Fund 710) is greater than 25% of operating expenses. However, this amount (as a percent of operating expenses) will drop over time as the new rates are adopted and implemented and funds are transferred to Fund 711 for capital expenses.

3.7 PROPOSED FINANCIAL PLAN AND REVENUE ADJUSTMENTS

The proposed revenue adjustments help ensure adequate revenue to fund operating expenses, capital expenditures, and meet reserve targets. The Financial Plan modelling assumes the first revenue adjustment occurs on October 1, 2018 with no further adjustments through FY 2023. The proposed revenue adjustments would enable the City to meet operating costs and to execute the CIP shown in Table 3-12. Table 3-13 shows the proposed revenue adjustments for the course of the Study period.

Table 3-13: Proposed Rate Adjustments

Effective Date	Proposed Water Revenue Adjustments
October 2018 (FY 2019)	-6.3 percent
July 2019 (FY 2020)	0.0 percent
July 2020 (FY 2021)	0.0 percent
July 2021 (FY 2022)	0.0 percent
July 2022 (FY 2023)	0.0 percent

Table 3-14 shows the cash flow detail over the next five fiscal years assuming the selected Financial Plan. Line 3 shows the reduction in revenue resulting from the revenue adjustments, line 7 shows total water fund revenue including non-operating revenues and interest. Line 10 shows total O&M expenses. Line 11 shows net income, or revenues less expenses, which is the result of subtracting line 10 from line 7. The City has no current debt service and no planned debt service, so total revenues are unchanged. Line 15 shows net cash changes, which is the result of subtracting lines 13 and 14, from line 11. Line 16 shows the enterprise's operating balance at the start of the fiscal year. Line 17 shows cash changes before transfers, the same amount as shown in Line 15, line 18 shows transfers to Fund 711 which will go to Capital spending (some spending will be from existing reserves in Fund 711) and line 19 shows the one-time rate repayment in FY 2018. To get to the Fund's ending balance, lines 16, 17, 18, and 19 are added together. Line 23 shows the total operating reserve target, set at 25% of operating expenses.

Table 3-14: Six-Year Water Operating Cash Flow

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Line							
1	Fixed Charge Revenue	\$8,858,616	\$8,989,709	\$9,122,038	\$9,256,222	\$9,391,643	\$9,528,301
2	Commodity Revenue	\$7,048,873	\$7,401,317	\$7,771,383	\$8,159,952	\$8,567,949	\$8,835,441
	Subtotal Revenue						
3	Adjustment	\$0	-\$860,529	-\$1,064,286	-\$1,097,219	-\$1,131,454	-\$1,156,916
4	Total Water Sales Revenue	\$15,907,490	\$15,530,497	\$15,829,135	\$16,318,955	\$16,828,138	\$17,206,826
5	Non-Operating Revenue	\$212,826	\$214,872	\$216,939	\$219,026	\$221,135	\$223,264
6	Interest	\$56,908	\$36,132	\$34,063	\$44,329	\$40,886	\$54,122
	Total Water Enterprise Revenue	\$16,177,224	\$15,781,501	\$16,080,137	\$16,582,310	\$17,090,159	\$17,484,212
8	Total Supply Cost	\$7,755,592	\$8,070,789	\$8,402,168	\$8,750,763	\$9,117,683	\$9,461,712
9	Other Operating Costs	\$3,164,578	\$3,385,160	\$3,615,135	\$3,858,959	\$4,125,634	\$4,405,643
10	Total O&M	\$10,920,169	\$11,455,949	\$12,017,303	\$12,609,722	\$13,243,317	\$13,867,355
11	Total Operating Revenue	\$5,257,054	\$4,325,552	\$4,062,834	\$3,972,588	\$3,846,842	\$3,616,857
12	Debt Service						
13	Total New Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
14	Existing Debt	\$0	\$0	\$0	\$0	\$0	\$0
15	Net Cash Changes	\$5,257,054	\$4,325,552	\$4,062,834	\$3,972,588	\$3,846,842	\$3,616,857
	Fund 710 FY Beginning Balance	\$8,816,500	\$3,480,110	\$3,455,663	\$3,193,496	\$3,341,084	\$3,317,926
16							
17	Net Cash Changes	\$5,257,054	\$4,325,552	\$4,062,834	\$3,972,588	\$3,846,842	\$3,616,857
18	Transfer (to)/from Fund 711	-\$4,600,000	-\$4,350,000	-\$4,325,000	-\$3,825,000	-\$3,870,000	-\$3,447,000
19	Refunding/Rate Repayment	-\$5,993,444	\$0	\$0	\$0	\$0	\$0
20	Fund 710 FY Ending Balance	\$3,480,110	\$3,455,663	\$3,193,496	\$3,341,084	\$3,317,926	\$3,487,783
21	Target Balances						
22	Operating Reserve	\$2,730,042	\$2,863,987	\$3,004,326	\$3,152,431	\$3,310,829	\$3,466,839
23	Total Target	\$2,730,042	\$2,863,987	\$3,004,326	\$3,152,431	\$3,310,829	\$3,466,839

Table 3-15 shows the cash flow for Fund 711. The City maintains a Capital reserve with a target of the average CIP spending over the study period. Table 3-15 shows that the Capital Fund will remain over the target balance for the study period.

Table 3-15: Six-Year Capital Fund Cash Flow

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Line							
1	Capital Reserve Target	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000
2	Fund 711 Beginning Balance	\$9,956,148	\$6,258,148	\$4,908,148	\$5,508,148	\$5,733,148	\$4,003,148
3	CIP Spending	-\$8,298,000	-\$5,700,000	-\$3,725,000	-\$3,600,000	-\$5,600,000	-\$3,450,000
4	Transfer from Fund 710	\$4,600,000	\$4,350,000	\$4,325,000	\$3,825,000	\$3,870,000	\$3,447,000
5	Fund 711 Ending Balance	\$6,258,148	\$4,908,148	\$5,508,148	\$5,733,148	\$4,003,148	\$4,000,148

Figures 3-1 through 3-5 display the FY 2018 through FY 2023 Financial Plan in graphical form. Figure 3-1 shows the modeled revenue adjustments (blue bars) for the next four years, assuming that rates corresponding to the suggested revenue requirements in this study are adopted. In this case, a decrease in revenue requirements of -6.3% is followed by no suggested adjustments for the next four years.

Figure 3-1: Proposed Revenue Adjustments

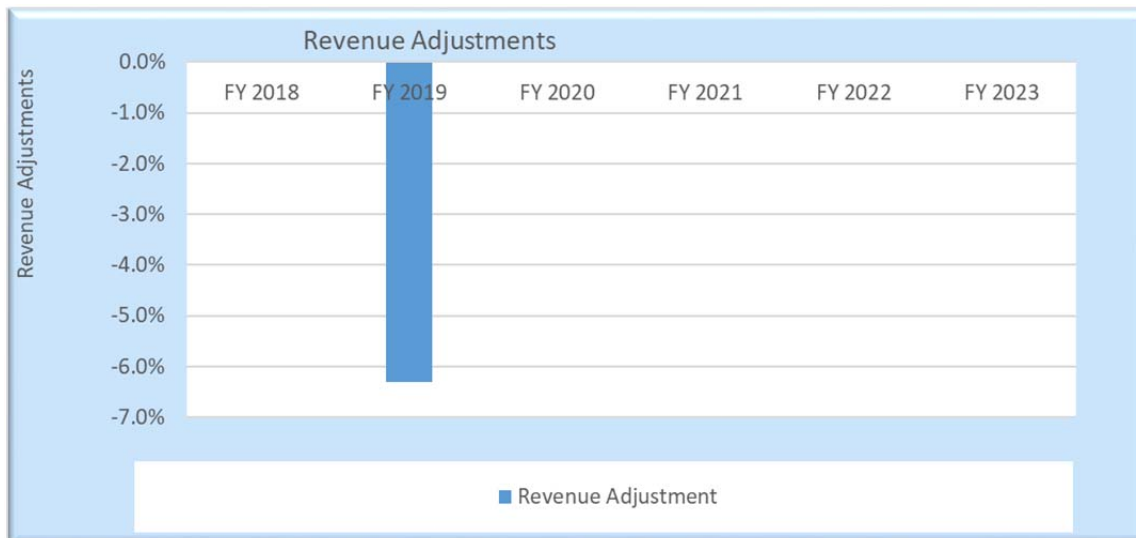


Figure 3-2 illustrates the Operating Financial Plan – it compares existing and proposed revenues with projected expenses. The expenses include O&M, purchased water, transfers to Fund 711 and reserve funding. Expenses are shown by the stacked bars. Total projected revenues at existing and proposed rates are shown by the horizontal red and blue lines, respectively. Projected revenue from existing rates if continued unchanged, in red, would exceed future projected total expenses and illustrates the need for revenue adjustments necessary to accomplish the desired CIP and to meet reserve targets while keeping the costs to ratepayers as low as possible

Figure 3-2: Proposed Operating Financial Plan

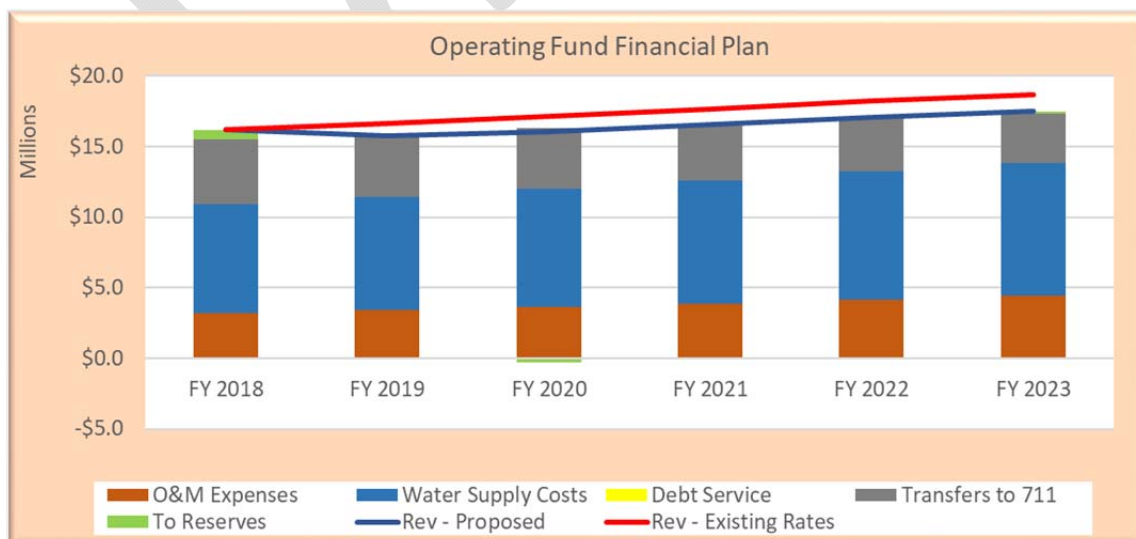


Figure 3-3 summarizes the projected CIP and its funding sources – debt or PAYGO funded. All CIP Spending flows from Fund 711. As shown, the City plans to pay for all its CIP via rate revenue and reserves; the City will not issue debt to pay for future CIP during the study period. The City currently has a healthy balance in its capital reserve fund, Fund 711. This balance will be drawn down to fund Capital projects, although this fund balance will also need to be supplemented with transfers from Fund 710.

Figure 3-3: Projected CIP and Funding Sources

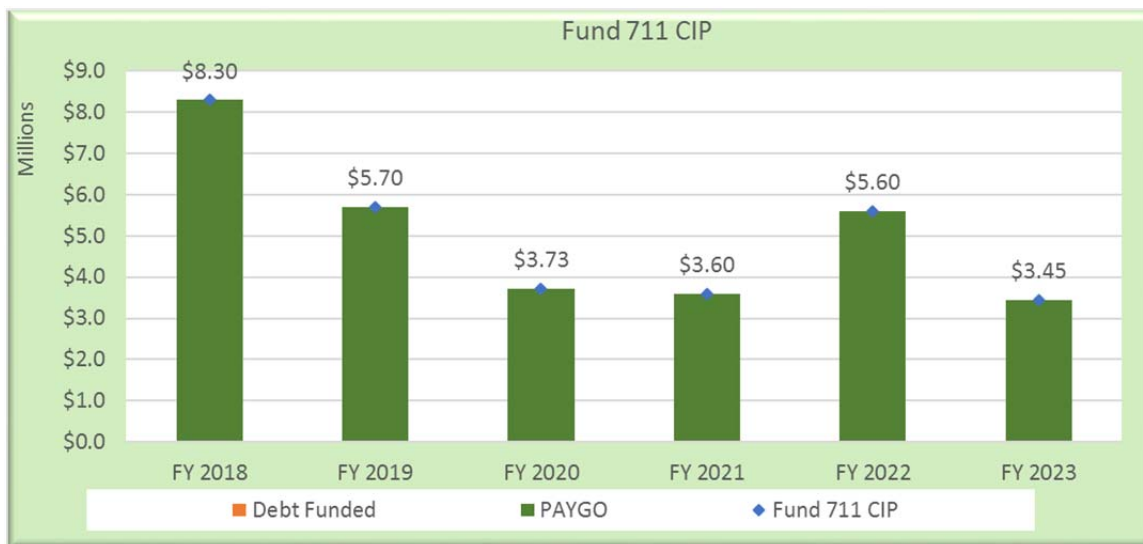


Figure 3-4 displays the total operating fund (Fund 710) yearly ending balance (blue bars). The green line is the total fund target balance, which is set at three months of O&M expenses based on proposed City policy. As shown, the operating fund is above the target through the study period assuming suggested rate adjustments are adopted and implemented, and draws down close to the target in FY 2023.

Figure 3-4: Projected Operating Fund Ending Balances

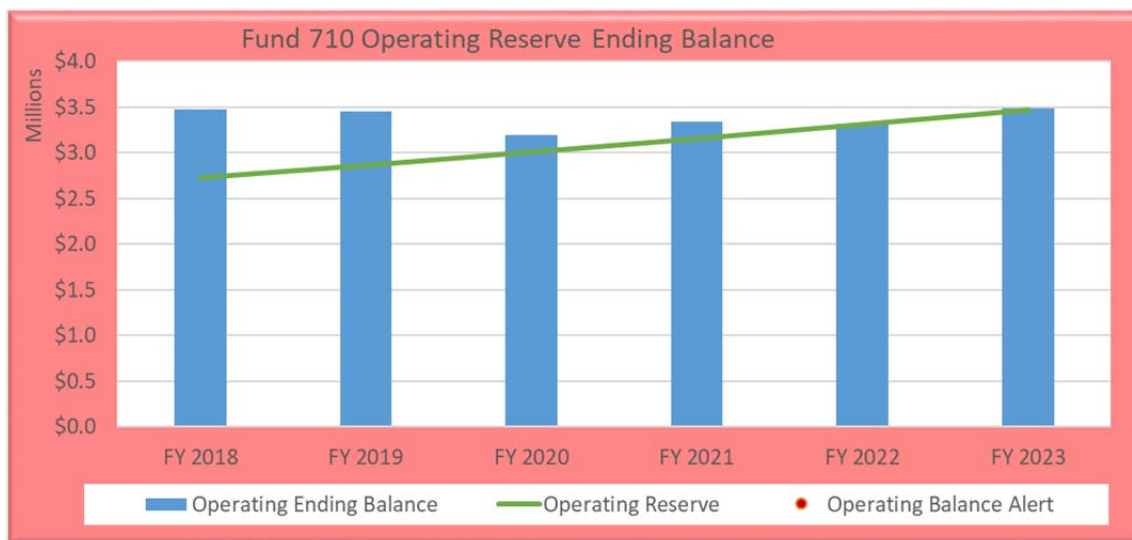
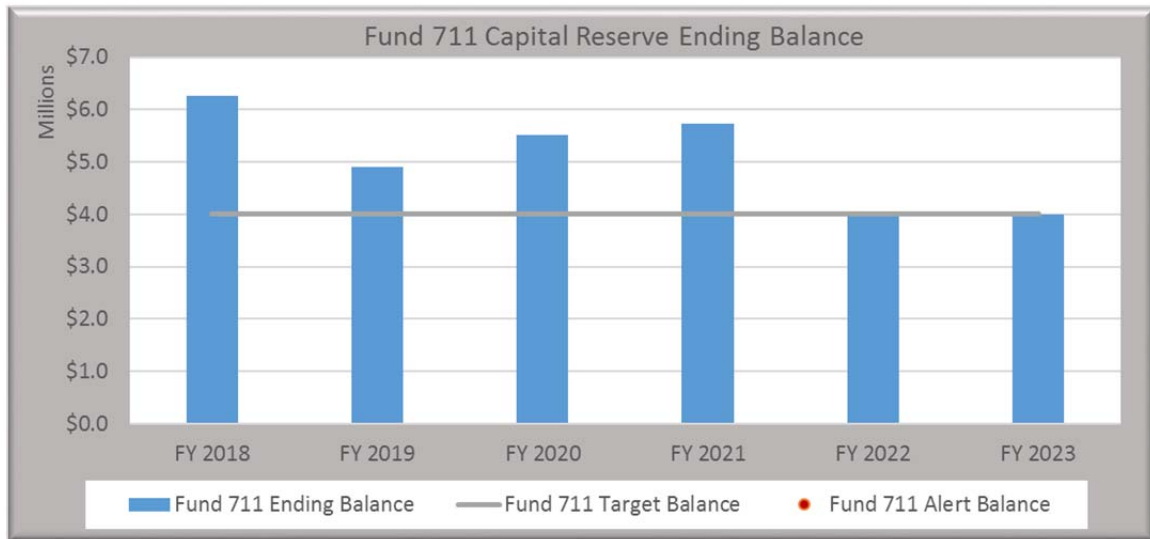


Figure 3-5 shows the projected Capital Fund Ending Balance. This fund, Fund 711, is being used to fund the water enterprise's CIP, and would be drawn down to below the target level absent transfers from Fund 710.

Figure 3-5: Projected Capital Fund Ending Balances



4 LEGAL FRAMEWORK AND RATE SETTING METHODOLOGY

4.1 LEGAL FRAMEWORK

This section of the report describes the legal framework that was considered during the rate setting process.

California Constitution - Article XIII D, Section 6 (Proposition 218)

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements for fairness of the fees, as they relate to public water service are as follows:

1. A property-related charge (such as water rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property related service.
2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional Cost of Service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.
5. No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.
6. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

Prop 218 requires that water rates cannot be “arbitrary and capricious,” meaning that the rate-setting methodology must be sound and that there must be a nexus between costs and the rates charged. Raftelis followed industry standard rate setting methodologies set forth by the AWWA *M1 Manual* to ensure this study meets Proposition 218 requirements and creates rates that do not exceed the proportionate cost of providing water services.

California Constitution - Article X, Section 2

Article X, Section 2 of the California Constitution (established in 1976) states the following:

- “It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.”

As stated above Article X, section 2 of the State Constitution institutes the need to preserve the State's water supplies and to discourage the wasteful or unreasonable use of water by encouraging conservation. As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation.

In addition, Section 106 of the Water Code declares that the highest priority use of water is for domestic purposes, with irrigation secondary. To meet the objectives of Article X, section 2, Water Code Section 375 et seq., a water purveyor may utilize its water rate design to incentivize the efficient use of water.

4.2 COST-BASED RATE-SETTING METHODOLOGY

To develop utility rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the utility, there are four major steps discussed below.

1) Calculate Revenue Requirement

The rate-making process starts by determining the test year revenue requirement - which for this study is FY 2019. The revenue requirement should sufficiently fund the utility's O&M, debt service (where applicable), capital expenses, and reserve funding.

2) Cost of Service Analysis (COS)

The annual cost of providing water service is distributed among customer classes commensurate with their service requirements. A COS analysis involves the following:

1. Functionalizing costs. Examples of functions are supply, treatment, transmission, distribution, storage, meter servicing and customer billing and collection.
2. Allocating functionalized costs to rate components. Rate components include a Monthly Service Charge and a Volumetric Charge.
3. Distributing the cost components. Distribute rate components, using unit costs, in proportion to the demands on the water system. This is described in the M1 Manual published by AWWA.

3) Rate Design and Calculations

Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of various utility objectives, such as conservation, affordability for essential needs and revenue stability among other objectives. Rates may also act as a public information tool in communicating these objectives to customers.

4) Rate Adoption

Rate adoption is the last step of the rate-making process to comply with Proposition 218. Raftelis documented the rate study results in this Study Report to help educate the public about the proposed changes, the rationale and justifications behind the changes and their anticipated financial impacts in lay terms.

5 COST OF SERVICE ANALYSIS

The principles and methodology of a Cost of Service analysis were described in Section 4.2. This section explains the details of the Cost of Service analysis conducted for the City of Lincoln for its water provision services to customers.

A Cost of Service analysis distributes a utility's revenue requirement (costs) to each customer class. After determining a utility's revenue requirement, the next step in a Cost of Service analysis is to functionalize its O&M costs to the following **functions**:

1. Supply Costs
2. Distribution Costs
3. Meter Service Costs
4. Billing and Collection Costs
5. Administration Costs
6. Storage Costs
7. Treatment Costs
8. Fire Protection Costs³

The functionalization of costs allows us to better allocate the functionalized costs to the **rate components**. Per direction from the City, the rate components used in this study are:

1. Monthly Service Charge
2. Volumetric Charge

5.1 REVENUE REQUIREMENT DETERMINATION

Table 5-1 shows the revenue requirement derivation with the total revenue required from rates shown in Column (c), Line 15. The totals shown in Columns (c) are the total O&M and capital revenue requirements that are allocated to the cost components using the allocation percentages shown in Lines 18 of Table 5-3 and Table 5-4.

Raftelis calculated the revenue requirement using Fiscal Year 2019 expenses, which include water purchases, other operating (O&M) expenses, and rate funded capital costs. O&M expenses include costs directly related to the treatment, and distribution of water as well as routine maintenance of system facilities. The subtotal of Operating Revenue Requirements is shown in Line 5, column (a) and the sum of Capital Revenue Requirements is shown in Line 5, column (b). Total Revenue Requirements are shown in

³ Municipalities commonly include fire suppression costs in rate modelling. However, the issue of whether this practice is Proposition 218 compliant is presently before the Court of Appeal in *Glendale Coalition for Better Government v. City of Glendale*, 2nd District Court of Appeal, case no. B283819. An adverse decision may necessitate a revision to the rates, which would result in a nominal rate reduction, but have significant impact on the General Fund.

Line 6 column (c). To arrive at the Revenue Requirements from Rates (line 14), we subtract revenue offsets (Line 19) from other revenues and make adjustments for annual cash balances (line 11). The adjustments, shown as negative values are subtracted (therefore added as a result of subtracting a negative number) to arrive at the total revenue required from rates in line 14, column (c). This is the amount that fixed charges and commodity charges are designed to collect. Note that this amount is the annualized amount of rate revenue shown in Table 3-14 for FY 2019.⁴ The revenue requirements assume adoption of the proposed new rates starting in September 2018 and a revenue adjustment to reflect funds collected at the current water rates until that time.

Table 5-1: Revenue Requirement Determination

Line	Description	FY 2019		
		Operating	Capital	Total
		(a)	(b)	(c)
1	Revenue Requirements			
2	Water Purchases	\$8,070,789		\$8,070,789
3	Other Operating Costs	\$3,385,160		\$3,385,160
4	Transfer to Capital Reserve		\$4,350,000	\$4,350,000
5	Subtotal Revenue Requirements	\$11,455,949	\$4,350,000	\$15,805,949
6	Less: Revenue Offsets			
7	Non-Operating Revenue	\$214,872		\$214,872
8	Interest	\$36,132		\$36,316
9	Subtotal Revenue Offsets	\$251,004	\$0	\$251,004
10	Less: Adjustments			
11	Adjustment for Cash Balance	\$24,448		\$24,448
12	Adjustment for Mid-Year Adoption	\$172,106		\$172,106
13	Total Adjustments	\$196,554	\$0	\$196,554
14	Revenue Requirement from Rates	\$11,008,391	\$4,350,000	\$15,358,391

5.2 FUNCTIONALIZATION OF O&M EXPENSES

The City provided Raftelis with a functionalized budget for FY 2017. That is, the line items of the budget were allocated by percentages into the functions listed above. Raftelis applied these same percentages to the projected costs in FY 2019. Table 5-2 shows the functionalization of the City's O&M expenses. Functionalizing O&M expenses allows Raftelis to follow the principles of rate setting theory in which the end goal is to allocate the City's O&M expenses to cost causation components. This process is further explained in Section 5.3. Note that the Supply function includes more than just the Water Purchases cost

⁴ This rate adjustment is proposed to be adopted in October, thus the revenue requirement calculation has to be adjusted to incorporate this adjustment. Not adjusting these rates would result in only 9/12 of the rate adjustment being implemented due to the three "missed" months.

shown in Table 5-1, this represents the additional costs in the budget associated with obtaining water including some groundwater pumping costs.

Table 5-2: Functionalization of O&M Expenses

Supply	Treat- ment	Operat- ions	Meter Service	Billing and Collection	Admin- istration	Storage	Fire Protec- tion	Totals
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
\$8,280,852	\$238,590	\$928,859	\$456,757	\$813,193	\$499,735	\$115,284	\$122,679	\$11,455,949

5.3 ALLOCATION OF FUNCTIONALIZED EXPENSES TO COST COMPONENTS

After functionalizing expenses, the next step is to allocate the functionalized expenses to rate components. In this study there are two rate components, a volumetric rate component assessed on every unit of water sold, and a Fixed Monthly Service charge assessed based on the size (and therefore capacity) of the ratepayer's meter.

Table 5-3 allocates the functionalized O&M expenses shown in Column (a), Lines 1 through 8, (and also shown earlier in Table 5-2) to each rate component using the basis shown in Column (b) of Table 5-3 (Lines 1-8). These costs were allocated based on the basis that all of the City's costs less a portion of its purchased water cost would be recovered on the basis of the Fixed Monthly Service charge. (See also Section 5.4.) All non-Supply related costs, both operating and capital, are thus proposed to be recovered on the fixed charge. The functions (Lines 1 through 8) are allocated according to the above basis.

In Lines 9 through 16 the costs in Column (e) Lines 1 through 8 are multiplied by the corresponding percentages shown in blue in Table 5-4. The resulting dollar amounts show the allocation to the corresponding cost components. Line 17 of Table 5-3 shows the total resulting cost component allocation for O&M expenses. This resulting amount is used to allocate the City's operating revenue requirement (discussed in Section 5.1) to the cost components.

Part of the City's revenue requirement includes transfer to the capital reserve to fund capital improvement projects. As a result of the requested updated analysis, these transfers are proposed to be funded exclusively through the fixed charge.

Table 5-3: Allocation of Functionalized O&M Expenses to Rate Components

	O&M Functions	Allocation Basis	Monthly Service Charge	Volumetric Charge	FY 2019
Line	(a)	(b)	(c)	(d)	(e)
1	Supply	Volumetric Charge		100.0%	\$8,280,852
2	Treatment	Monthly Service Charge	100.0%		\$238,590
3	Operations	Monthly Service Charge	100.0%		\$928,859
4	Meter Service	Monthly Service Charge	100.0%		\$456,757
5	Billing and Collection	Monthly Service Charge	100.0%		\$813,193
6	Administration	Monthly Service Charge	100.0%		\$499,735
7	Storage	Monthly Service Charge	100.0%		\$115,284
8	Fire Protection	Monthly Service Charge	100.0%		\$122,679
9	Supply		\$0	\$8,280,852	
10	Treatment		\$238,590	\$0	
11	Operations		\$928,859	\$0	
12	Meter Service		\$456,757	\$0	
13	Billing and Collection		\$813,193	\$0	
14	Administration		\$499,735	\$0	
15	Storage		\$115,284	\$0	
16	Fire Protection		\$122,679	\$0	
17	Total O&M Rate Component Allocation		\$3,175,097	\$8,280,852	\$11,455,949
18	Total O&M Allocation Percentages		27.7%	72.3%	100%

Table 5-4: Allocation of Functionalized Capital Expenses to Rate Components

		Allocation Basis	Monthly Service Charge	Volumetric Charge	FY 2019
Line	(a)	(b)	(c)	(d)	(e)
1	Capital Rate Component Percentage	Monthly Service Charge	100.0%	0.0%	100.0%
2	Capital Rate Component Allocation		\$4,350,000	\$0	\$4,350,000

5.4 REVENUE OFFSETS, GENERAL EXPENSES, AND PEAK ALLOCATION

Raftelis then applied the offsets and adjustments (from Table 5-1) to the totals calculated in to the Operating Revenue Requirement (Table 5-3, Line 17) and add the Capital Requirements (Table 5-4, Line 2) to yield the total Cost of Service shown in line 5 of Table 5-8. These calculations are all shown in Table 5-8, below. Note that the total Cost of Service (Line 5) is the same as the revenue requirement shown in Line 14 column (c) of Table 5-1.

In Table 5-8, the total of Lines 1 through 4 equal Line 5, the Total Cost of Service. The City decided to allocate a portion of PCWA's fixed charge to the Monthly Service charge. The median residential use per account per month is 6 kgals, while each purchased EDU entitles the City to use 35 kgals per month. Considering this, the City decided to recover $6/35^{\text{ths}}$, or 17.1% of its costs associated with the PCWA fixed charge to the EDU charge, to provide additional revenue stability. Total PCWA Fixed Charge spending in FY 2019 is shown in Table 3-10, $6/35^{\text{ths}}$ of \$6,337,669 is \$1,086,458. This amount was allocated from the Volumetric Charge to the Monthly Service Charge in line 6 of Table 5-5.

Table 5-5: Total Adjusted Cost of Service Calculation

	Final Allocation Components	Monthly Service Charge	Volumetric Charge	FY 2019
Line	(a)	(b)	(c)	(d)
1	Operating Expenses	\$3,175,097	\$8,280,852	\$11,455,949
2	Capital Expenses	\$4,350,000	\$0	\$4,350,000
3	Revenue Offset	-\$251,004	\$0	-\$251,004
4	Cash Balance Allocation	-\$196,554	\$0	-\$196,554
5	Total Cost of Service	\$7,077,539	\$8,280,852	\$15,358,391
6	Reallocation to Monthly Service Charge	\$1,086,458	-\$1,086,458	
7	Total Adjusted Cost of Service	\$8,163,997	\$7,194,394	\$15,358,391

The final Total Adjusted Cost of Service (on Line 9 of Table 5-5) is the total to be recovered from the Monthly Service (Meter) Charge in column (b) and the Volumetric Charge recovers costs shown in column (c). These totals in columns (b) and (c) are the final rate components.

Table 5-6 shows the final allocation to the two rate components. It also shows the percentage of each total rate component relative to the total revenue requirement and the percentage recovered on the fixed meter, or Monthly Service charge and to the variable, or volumetric, charges.

Table 5-6: Final Rate Components

Final Rate Components	Monthly Service Charge	Volumetric Charge
(a)	(b)	(c)
Total	\$8,163,997	\$7,194,394
Fixed/Variable Split	53.2%	46.8%

6 RATE DERIVATION

6.1 PROPOSED RATE STRUCTURE AND RATES

The City's water service fees are comprised of two parts: (1) a Monthly Service Charge, also called an Monthly Service Charge and (2) a Volumetric Charge. The Monthly Service Charge is a fixed charge based on the size of meter serving a property. It has been calculated to recover all of the City's fixed costs, such as the costs of billing and collection, customer service, meter reading, and meter maintenance, as well as the costs associated with peaking and a portion of the fixed costs associated with PCWA water purchases as billed by PCWA to the City. The Volumetric Charge has been calculated to recover the balance of remaining costs associated with meeting supply costs.

This section will explain the rate derivation process for EDU and Volumetric Charges, in that order. The total adjusted Cost of Service projected for FY 2019 is shown in Table 6-1 below. Note that this table shows the same values from Line 9 of Table 5-5.

The Monthly Service Charge rate component recovers fixed costs associated with system operation. In this case, it also recovers the extra capacity costs associated with peaking and some of the costs associated with purchasing water from PCWA. These costs are allocated based on meter size because it is assumed that larger meters have a larger impact on the system, due to their higher capacity.

The Volumetric Charge rate component recovers costs associated with purchasing water from PCWA and some other Supply related costs such as groundwater pumping.

Table 6-1: Total Adjusted Cost of Service

Monthly Service Charge	Volumetric Charge	FY 2019 Total
(a)	(b)	(c)
\$8,163,997	\$7,194,394	\$15,358,391

6.2 PROPOSED MONTHLY SERVICE CHARGE

The Proposed Monthly Service Charges are designed to recover the amount associated with the Monthly Service Charge Revenue Requirement. To calculate the Monthly Service charges, Raftelis first had to determine the proper denominator to allocate these costs, which was done with an Equivalent Meter Units (EMU) Analysis. The Monthly Service Charge rate component is allocated based on meter Operating Capacity. Above we calculated the amount to be recovered by this rate component, so the next step in calculating the Monthly Service Charge is to determine the total number of EMUs. Table 6-2 shows the number of meters in FY 2019 and adds in the City Irrigation meters which were not included in the total in that table. The Total number of meters is shown in column (c), which is a sum of the meters in columns (a) and (b).

Please note that the number of ¾" and 1" accounts in column (a) of Table 6-2 do not equal the values displayed in Table 3-3. This is due a new policy implemented by the City which states that a residential customer with a 1" meter must have a property size of at least 13,000 square feet to be classified as a 1" residential customer.⁵ Therefore, all residential customers with a 1" meter and property size less than 13,000 square feet are to be classified as ¾" residential customers. Lines 1 and 2 of Column (a) in Table 6-2 reflect the reclassification of 1" residential customers with property sizes less than 13,000 square feet as ¾" residential customers.

The reader will note that in Section 3.3.1 it was stated that it is expected that the majority of the City's new accounts will connect with 1" and 1.5" meters. While this may seem at odds with the information presented in the above paragraph, the rate design takes into account the City's policy choice by reclassifying a majority of 1" meters as ¾" meters. The rates are designed to collect the revenue requirement in the Test Year (FY 2019) with this change accounted for. Assigning future connecting 1" meters to either the ¾" meter rate or the 1" meter rate is at the City's discretion.

Table 6-2: Account by Meter Size Calculation

	Meter Size	Accounts	City Irrigation Meters	Total Meters
Line		(a)	(b)	(c)
1	¾"	17,402	17	17,419
2	1"	805	13	818
3	1.5"	142	14	156
4	2"	70	11	81
5	3"	19	8	27
6	4"	6	7	13
7	6"	1	0	1
8	8"	0	0	0
9	Total	18,445	70	18,515

Table 6-3 shows the EMU calculation. Column (a) shows the number of meters for each meter size from Table 6-2. Column (b) shows each meter's operating capacity (in gallons per minute) as provided by the AWWA M1 Manual in Table B-2.⁶ Column (c) shows the ratio of each meter's operating capacity relative to the base meter, in this case the ¾" meter. Column (d) calculates the total number of EMUs by multiplying the values in Column (b) by the values in Column (c). The total of 20,689 EMUs is shown in Line 9, Column (d).

⁵ Per email from S. Ambrose received on 5/29/2018: "1" residential customers shall meet two criteria; (1) installation of a 1" meter and (2) parcel size is 13,000 square feet or greater."

⁶ American Water Works Association, Principles of Water Rates, Fees, and Charges 2017 Edition, Table B-2, p. 386

Table 6-3: Equivalent Meter Unit Calculation

	Meter Size	Meter Count	AWWA Operating Capacity (in gpm)	AWWA Capacity Ratio	Equivalent Meter Units
		(a)	(b)	(c)	(d)
Line	Source	Table 6-2	AWWA M1 Manual	Column (b) ÷ (b)1	(a) × (c)
1	3/4"	17,419	30	1.00	17,419
2	1"	818	50	1.67	1,363
3	1.5"	156	120	4.00	624
4	2"	81	190	6.33	513
5	3"	27	435	14.50	392
6	4"	13	750	25.00	325
7	6"	1	1,600	53.33	53
8	8"	0	2,800	93.33	0
9	Total	18,515			20,689

Table 6-4 shows the Base Meter Monthly Service charge calculation. This charge was calculated by dividing the Monthly Service Charge cost component by the number of EMUs per year. Note that EMUs per year is the total number of EMUs multiplied by 12, since the City bills on a monthly basis. The charge shown in Line 4 is the charge for a Base (3/4") Meter. The ¾" meter is chosen as the base size as most of the existing meters are this size.

Table 6-4: Monthly Base Meter Monthly Service Charge Calculation

Line		Source	Total
1	Meter Capacity cost component	Table 6-1	\$8,163,997
2	Total EMUs	Table 6-3	20,689
3	EMUs per Year	Line 2 × 12	248,270
4	Base Meter Capacity charge	Line 1 ÷ Line 3	\$32.88

Since the Meter Capacity charge is calculated based on the number of EMUs, the EDU charge for each meter must be multiplied by the number of EMUs for each meter size (column (b) in Table 6-7). This calculation is shown in Table 6-5 below.

Column (a) shows the monthly Base EDU charge as derived in Table 6-4 for one EMU. Column (c) shows the total Proposed charge for each meter size, which is obtained by multiplying the Base Meter Capacity charge in Column (a) by the AWWA Capacity Ratios shown in Column (b). Note that the charges in Column (c), the total proposed monthly Meter Service Charge, are rounded to reflect hidden digits, so some may be one cent higher than one might expect.

Table 6-5: Derivation of the Monthly Meter Service Charge

	Meter Size	Base Monthly Service Charge	AWWA Capacity Ratio	Proposed Charge	Current Charge	\$ Difference between Proposed and Current
		(a)	(b)	(c)	(d)	(e)
Line	Source	Table 6-4	Table 6-3	Table 6-4	Table 3-2	(c)-(d)
1	3/4"	\$32.88	1.00	\$32.89	\$34.35	-\$1.46
2	1"	\$32.88	1.67	\$54.81	\$51.53	\$3.28 ⁷
3	1.5"	\$32.88	4.00	\$131.54	\$171.77	-\$40.23
4	2"	\$32.88	6.33	\$208.27	\$274.83	-\$66.56
5	3"	\$32.88	14.50	\$476.82	\$549.65	-\$72.83
6	4"	\$32.88	25.00	\$822.09	\$858.83	-\$36.74
7	6"	\$32.88	53.33	\$1,753.79	\$1,374.16	\$379.63
8	8"	\$32.88	93.33	\$3,069.14	\$2,442.87	\$626.27

6.3 COMMODITY RATES

Commodity Rates

The Citizen's Water Rate Study Committee recommended changing the City's current tiered system for all customers, and implementing a fixed charge with uniform volumetric rate structure for all customers. This recommendation was accepted by the City Council. The following describes how Raftelis calculated the uniform commodity rates, per the Committee's recommendation and the City Council's direction.

Unit Cost Definitions

The commodity rates for each class and tier are derived by summing of the unit rates (\$ / kgal) for the Volumetric Charge rate component. This charge is designed to recover water supply costs associated with obtaining and treating water to make it ready for transmission and distribution. The City has two primary sources of water which are water purchased from Placer County Water Agency (PCWA), and groundwater. The City also has the option of purchasing water from the Nevada Irrigation District (NID), however, this source is currently not available.

Unit Cost Derivation for each Cost Component

Raftelis estimated FY 2019 consumption by escalating FY 2016 consumption (the latest year for which data was available at the time of the study) by the factors shown in Table 2-2. Actual sales in FY 2016 were 6,548 AF, whereas projected sales in FY 2019 are 8,907 AF, a difference of 36%. The projected breakdown by customer class can be seen in Table 3-8. Raftelis projected total billed consumption in FY 2019 to be 3,047,246 kgal. Since the City is adopting a Uniform rate, the commodity rate for the

7 The previous rate study used a capacity ratio of 1.5 for 1" meters, which is not supported by the 2017 version of the AWWA M-1 Manual. As a result of this discrepancy, accounts with 1" meters will see an increase in their fixed charge.

Volumetric Charge can be calculated by dividing the total of that rate component by the projected consumption.

The Volumetric Charge rate calculation is shown in Table 6-6. The rate is calculated by dividing the total Volumetric Charge cost component by the total projected billed consumption in FY 2019.

Table 6-6: Base (Delivery) Rate Calculation

Line		Source	Total
1	Volumetric Charge Rate Component Total	Table 6-1	\$7,194,394
2	Total Projected Billed Consumption	Table 3-8	3,047,246
3	Base (Delivery) Rate (\$/kgal)	Line 1÷Line 2	\$2.37

The next two tables show the proposed commodity rates and monthly service charges through FY 2023; there are no projected rate increases, so if adopted as proposed the rates will remain constant through FY 2023.

Table 6-7: Commodity Charges through FY 2022

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Adjustment	-6.3%	0.0%	0.0%	0.0%	0.0%
Uniform Rate	\$2.37	\$2.37	\$2.37	\$2.37	\$2.37

Table 6-8: Fixed Charges through FY 2022

Meter Size	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
	Table 6-5	0.0%	0.0%	0.0%	0.0%
3/4"	\$32.89	\$32.89	\$32.89	\$32.89	\$32.89
1"	\$54.81	\$54.81	\$54.81	\$54.81	\$54.81
1.5"	\$131.54	\$131.54	\$131.54	\$131.54	\$131.54
2"	\$208.27	\$208.27	\$208.27	\$208.27	\$208.27
3"	\$476.82	\$476.82	\$476.82	\$476.82	\$476.82
4"	\$822.09	\$822.09	\$822.09	\$822.09	\$822.09
6"	\$1,753.79	\$1,753.79	\$1,753.79	\$1,753.79	\$1,753.79
8"	\$3,069.14	\$3,069.14	\$3,069.14	\$3,069.14	\$3,069.14

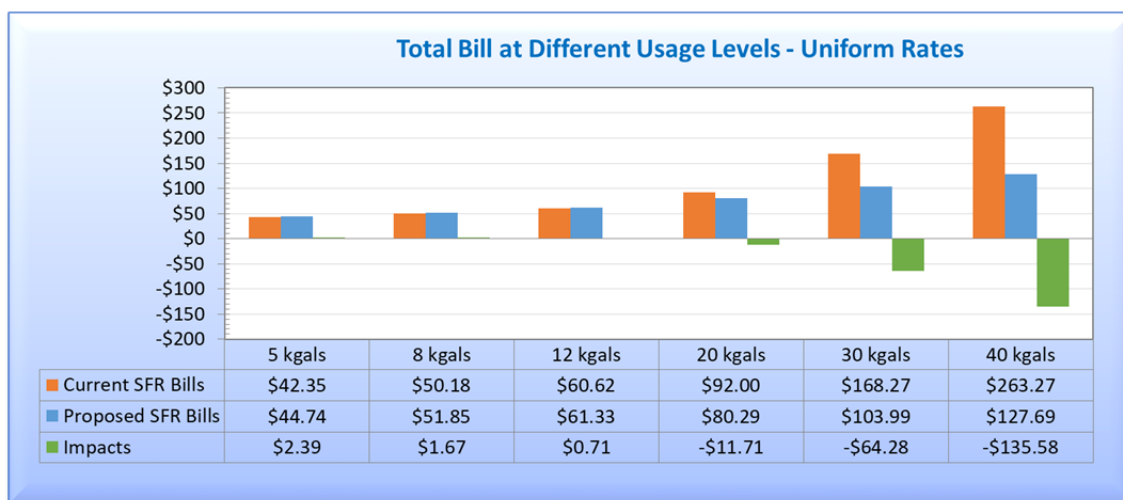
7 BILL IMPACTS

7.1 CUSTOMER BILL IMPACTS

Single Family Bill Impacts

Figure 7-1 shows the Single Family Residential bill impacts for various use points for FY 2019. The graph shows two sets of bars at different usage points. The orange bars represent the bills assuming the existing rate structure is unchanged yet rates are increased by the proposed revenue adjustments. The blue bars show the proposed rates that result if the proposed Financial Plan and proposed rate structure is adopted for FY 2019. Figure 7-1 assumes a ¾" meter size.

Figure 7-1: Single Family Customer Bill ¾" Meter Impacts



Class by Class Bill Impacts

Figures 7-2 through 7-8 show the percentage of accounts that will realize the bill impact shown at the bottom of the figure. For example, Figure 7-2 shows that 39.4% of SFR customers will see a \$0 to \$5 increase in their bill for FY 2019. The left axis shows number of bills for each dollar impact bin along with the percentage of customers on top of the blue bar. Note that these impacts are likely conservative as they don't show the reduction in fixed charges the majority of 1" residential customers will see.

Figure 7-2: SFR Class Impacts

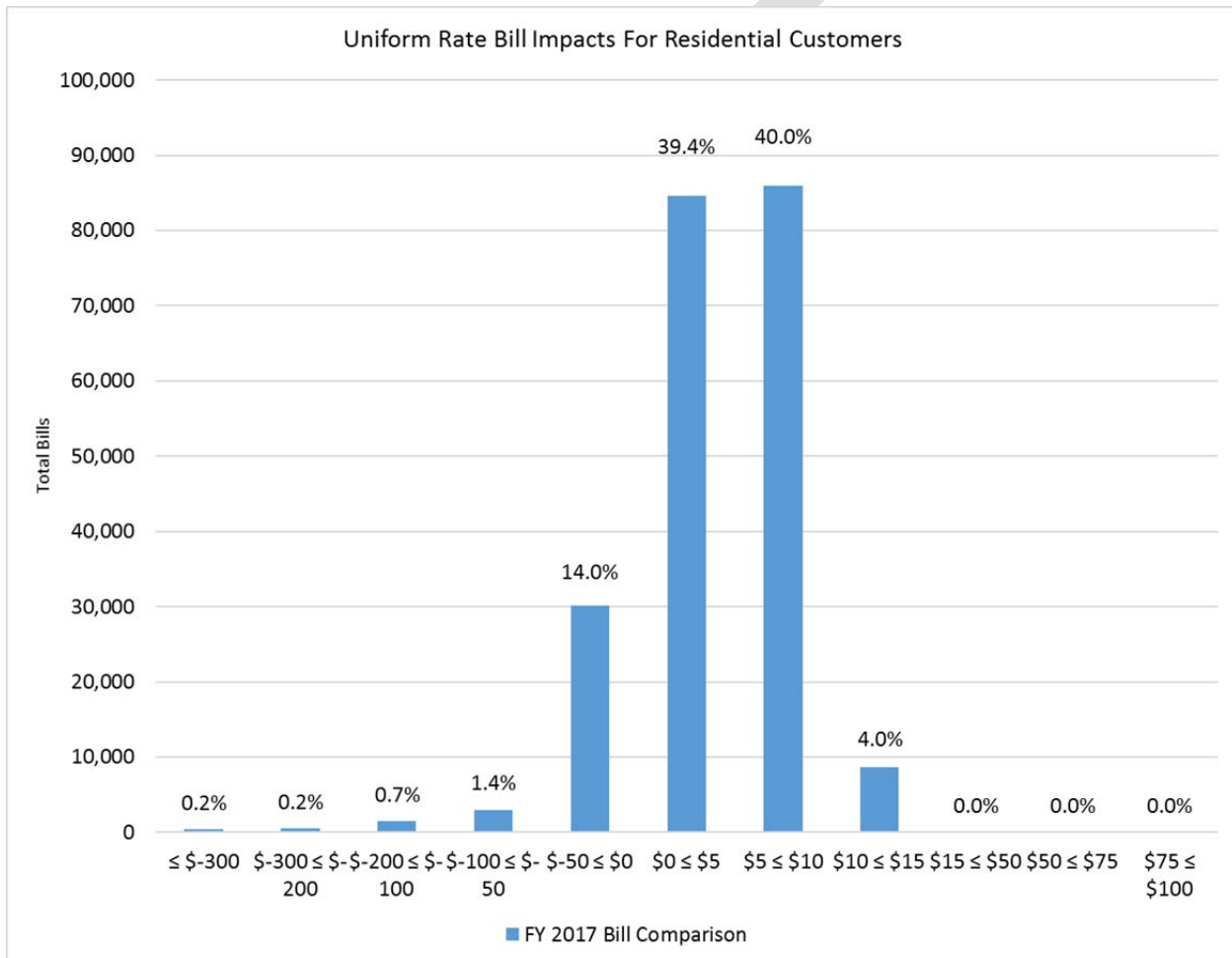


Figure 7-3 shows the bill impacts for customers with a ¾" meter across the first 20 units of usage. The vertical lines show the median SFR usage, average SFR usage, and SFR usage at the 90th percentile. Note that the change in the average bill under this rate structure is \$2.15.

Figure 7-3: SFR Class Impacts

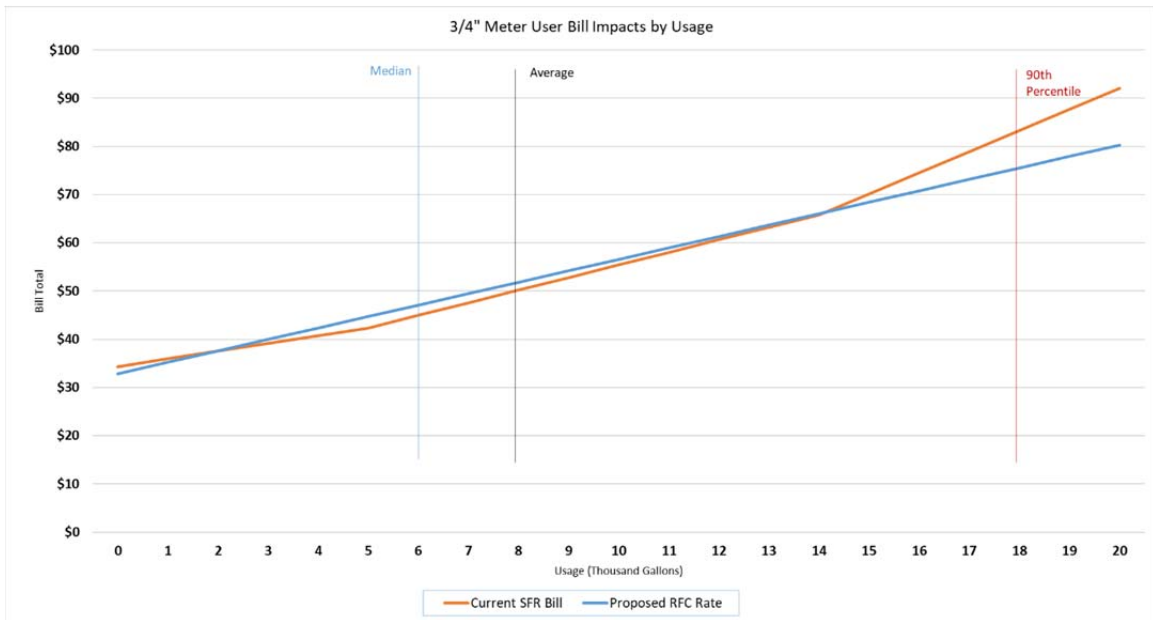


Figure 7-4: Irrigation Bill Impacts

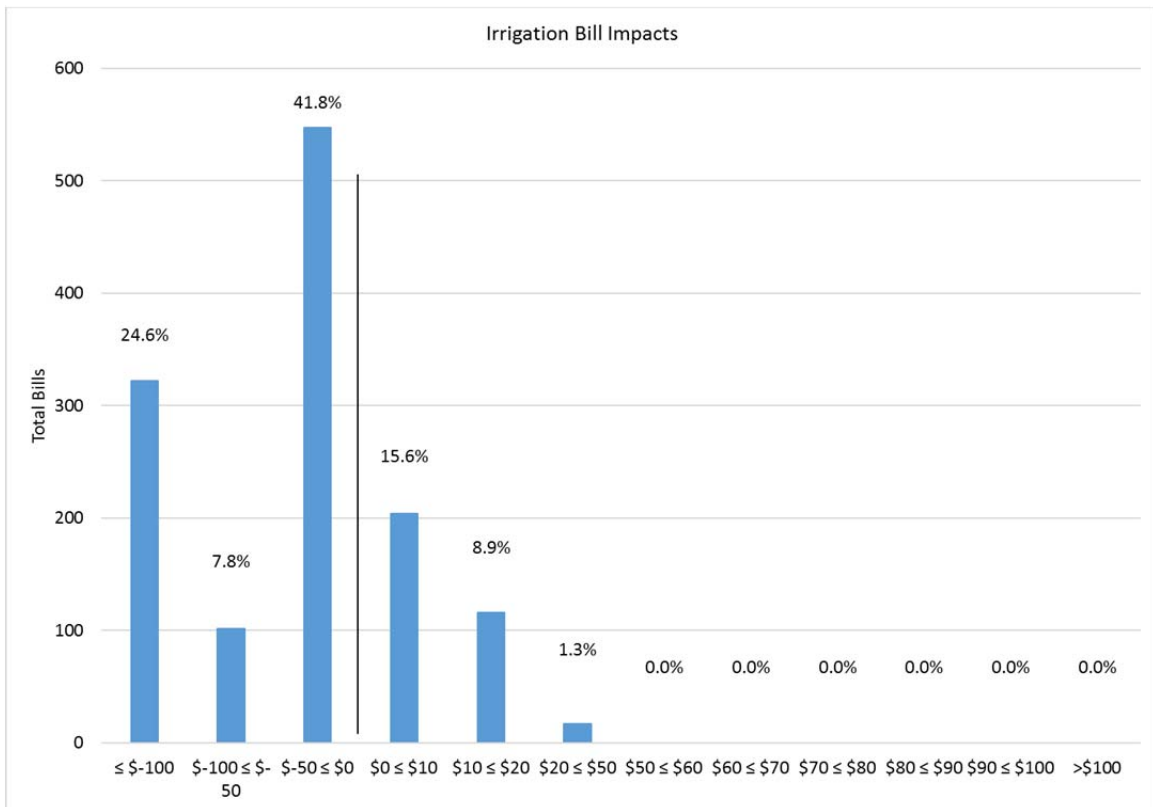


Figure 7-5: Non-Residential Bill Impacts

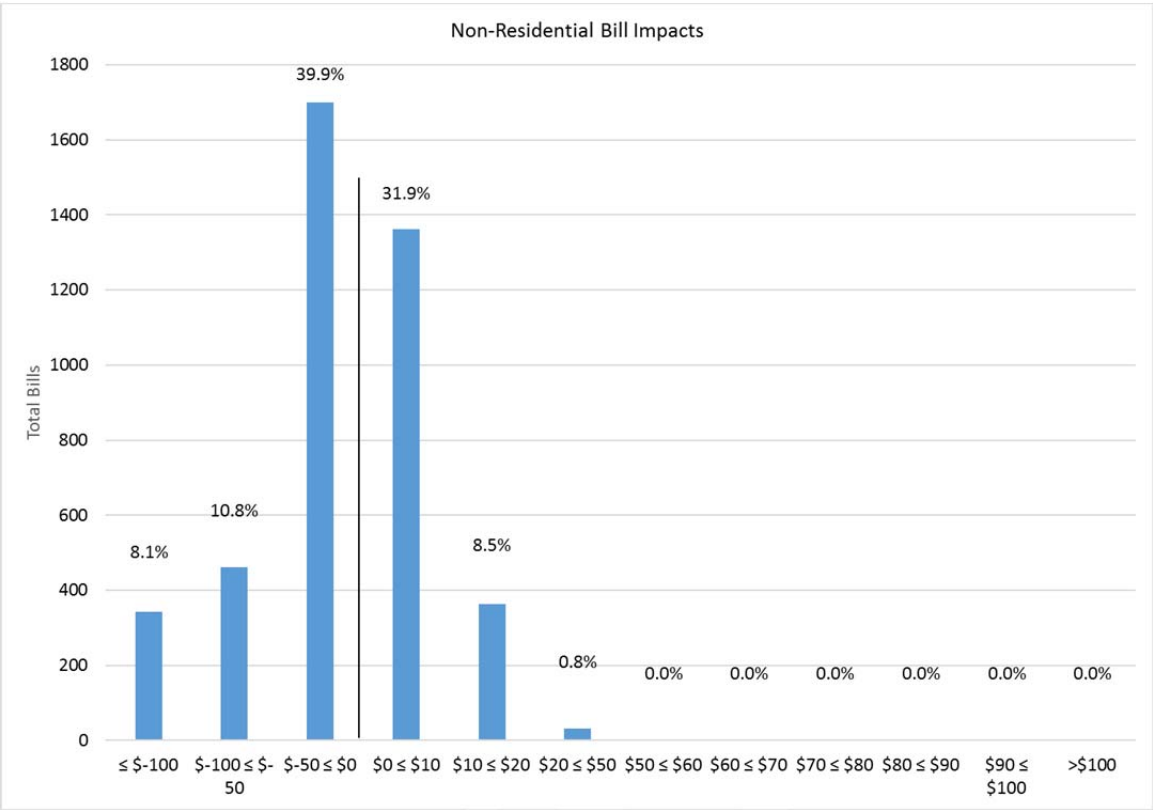
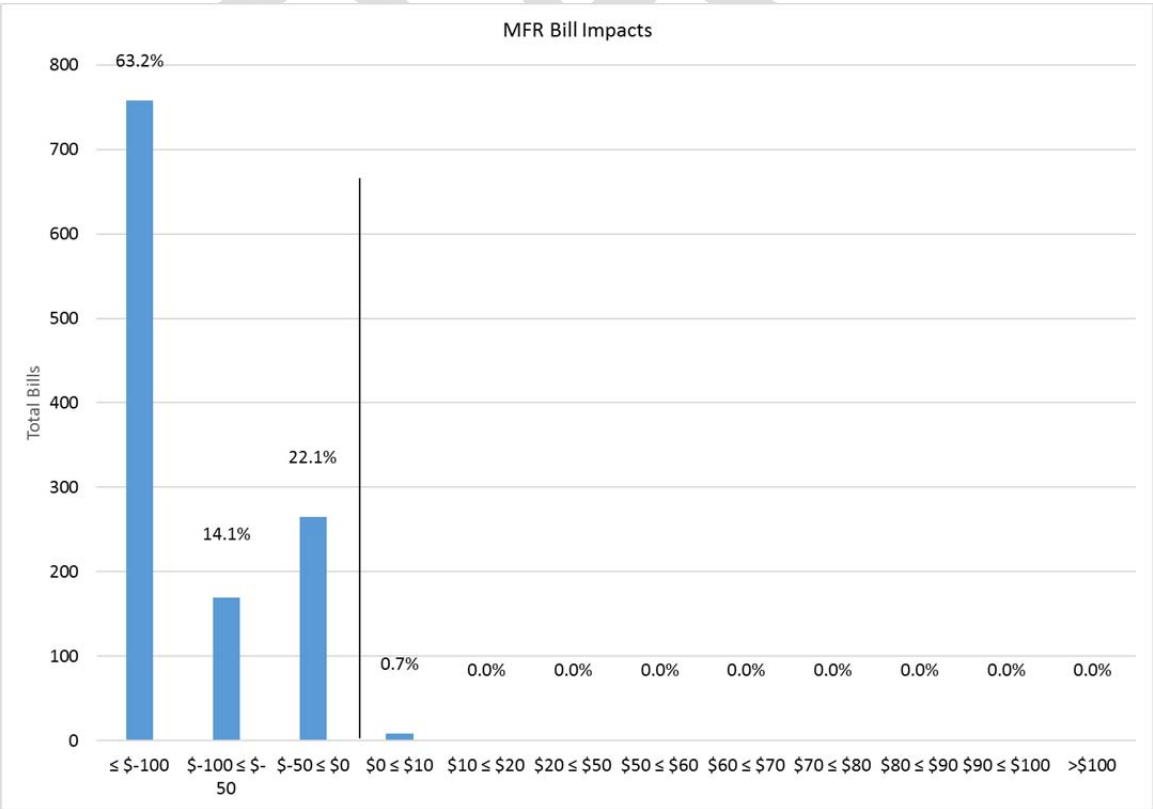


Figure 7-6: MFR Bill Impacts



8 APPENDIX A: O&M BUDGET

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Public Services - Operations						
Salaries - FT	\$468,950	\$492,398	\$517,017	\$542,868	\$570,012	\$598,512
Salaries-On Call	\$20,000	\$21,000	\$22,050	\$23,153	\$24,310	\$25,526
Salaries - PT	\$0	\$0	\$0	\$0	\$0	\$0
Salaries - OT	\$39,000	\$40,950	\$42,998	\$45,147	\$47,405	\$49,775
Compensated Absences	\$0	\$0	\$0	\$0	\$0	\$0
Retirement	\$36,492	\$37,587	\$38,714	\$39,876	\$41,072	\$42,304
PERS Unfunded	\$80,970	\$93,601	\$108,297	\$120,318	\$135,357	\$148,893
Workers Comp	\$44,348	\$47,896	\$51,728	\$55,866	\$60,335	\$65,162
Med/Den/Life Ins	\$102,393	\$110,584	\$119,431	\$128,986	\$139,305	\$150,449
SUI	\$3,298	\$3,331	\$3,364	\$3,398	\$3,432	\$3,466
OPEB Unfunded	\$47,550	\$49,928	\$52,424	\$55,045	\$57,797	\$60,687
FICA	\$40,388	\$42,407	\$44,528	\$46,754	\$49,092	\$51,546
Office Expense	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159
Insurance	\$18,353	\$19,271	\$20,234	\$21,246	\$22,308	\$23,424
Materials & Supplies	\$127,215	\$132,304	\$137,596	\$143,100	\$148,824	\$154,776
Fuel & Oil	\$21,000	\$21,840	\$22,714	\$23,622	\$24,567	\$25,550
Clothing	\$5,000	\$5,200	\$5,408	\$5,624	\$5,849	\$6,083
Advertising	\$50,000	\$50,500	\$51,005	\$51,515	\$52,030	\$52,551
Water Purchases	\$7,755,592	\$8,070,789	\$8,402,168	\$8,750,763	\$9,117,683	\$9,461,712
Communications	\$8,340	\$8,757	\$9,195	\$9,655	\$10,137	\$10,644
Equipment Maint	\$2,500	\$2,575	\$2,652	\$2,732	\$2,814	\$2,898
Building Maint	\$10,500	\$10,815	\$11,139	\$11,474	\$11,818	\$12,172
Utilities	\$152,700	\$176,369	\$203,706	\$235,280	\$271,748	\$308,256
Professional Services	\$246,855	\$259,198	\$272,158	\$285,766	\$300,054	\$315,056
Membership/Dues	\$116,759	\$117,927	\$119,106	\$120,297	\$121,500	\$122,715
Training/Travel/Conf/Mtgs	\$7,500	\$7,875	\$8,269	\$8,682	\$9,116	\$9,572
Regulatory Fees	\$51,700	\$54,285	\$56,999	\$59,849	\$62,842	\$65,984
Depreciation Expense	\$0	\$0	\$0	\$0	\$0	\$0
Equipment (includes CIP)	\$10,000	\$10,300	\$10,609	\$10,927	\$11,255	\$11,593
Vehicles (includes CIP)	\$30,653	\$31,572	\$32,520	\$33,495	\$34,500	\$35,535
Subtotal Public Services - Operations	\$9,499,055	\$9,920,287	\$10,367,088	\$10,836,529	\$11,336,288	\$11,816,001
6870-Streets						
Materials & Supplies	\$77,000	\$80,850	\$84,893	\$89,137	\$93,594	\$98,274
Professional Services	\$15,000	\$15,750	\$16,538	\$17,364	\$18,233	\$19,144
Training/Travel/Conf/Mtgs	\$3,500	\$3,675	\$3,859	\$4,052	\$4,254	\$4,467
Depreciation Expense	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$5,000	\$5,250	\$5,513	\$5,788	\$6,078	\$6,381
Construction	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal 6870-Streets	\$100,500	\$105,525	\$110,801	\$116,341	\$122,158	\$128,266

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Support Services - Utility Billing						
Salaries - FT	\$72,516	\$76,142	\$79,949	\$83,946	\$88,144	\$92,551
Salaries - OT	\$1,000	\$1,050	\$1,103	\$1,158	\$1,216	\$1,276
Compensated Absences	\$0	\$0	\$0	\$0	\$0	\$0
Retirement	\$5,488	\$5,653	\$5,822	\$5,997	\$6,177	\$6,362
PERS Unfunded	\$16,603	\$19,193	\$22,206	\$24,671	\$27,755	\$30,531
Workers Comp	\$290	\$313	\$338	\$365	\$395	\$426
Med/Den/Life Ins	\$19,295	\$20,839	\$22,506	\$24,306	\$26,251	\$28,351
SUI	\$579	\$585	\$591	\$597	\$603	\$609
OPEB Unfunded	\$8,455	\$8,878	\$9,322	\$9,788	\$10,277	\$10,791
FICA	\$5,624	\$5,905	\$6,200	\$6,510	\$6,836	\$7,178
Office Expense	\$667	\$687	\$708	\$729	\$751	\$773
Insurance	\$2,726	\$2,862	\$3,005	\$3,156	\$3,313	\$3,479
Materials & Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Communications	\$220	\$231	\$243	\$255	\$267	\$281
Professional Services	\$109,522	\$114,998	\$120,748	\$126,785	\$133,125	\$139,781
Training/Travel/Conf/Mtgs	\$500	\$525	\$551	\$579	\$608	\$638
Subtotal Support Services - Utility Billing	\$243,485	\$257,860	\$273,292	\$288,842	\$305,716	\$323,026
City Engineer						
Salaries - FT	\$20,221	\$21,232	\$22,294	\$23,408	\$24,579	\$25,808
Salaries - PT	\$1,250	\$1,288	\$1,326	\$1,366	\$1,407	\$1,449
Compensated Absences	\$0	\$0	\$0	\$0	\$0	\$0
Retirement	\$1,321	\$1,361	\$1,401	\$1,443	\$1,487	\$1,531
Workers Comp	\$450	\$486	\$525	\$567	\$612	\$661
Med/Den/Life Ins	\$4,870	\$5,260	\$5,680	\$6,135	\$6,626	\$7,156
SUI	\$109	\$110	\$111	\$112	\$113	\$115
OPEB Unfunded	\$1,585	\$1,664	\$1,747	\$1,835	\$1,927	\$2,023
FICA	\$1,643	\$1,725	\$1,811	\$1,902	\$1,997	\$2,097
Professional Services	\$47,000	\$49,350	\$51,818	\$54,408	\$57,129	\$59,985
Training/Travel/Conf/Mtgs	\$0	\$0	\$0	\$0	\$0	\$0
GIS	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal City Engineer	\$78,449	\$82,475	\$86,714	\$91,177	\$95,876	\$100,825
Public Services - Administration						
Salaries - FT	\$103,261	\$108,424	\$113,845	\$119,538	\$125,514	\$131,790
Salaries - PT	\$18,777	\$19,716	\$20,702	\$21,737	\$22,824	\$23,965
Compensated Absences	\$0	\$0	\$0	\$0	\$0	\$0
Retirement	\$6,251	\$6,439	\$6,632	\$6,831	\$7,036	\$7,247
Unfunded PERS	\$6,247	\$7,222	\$8,355	\$9,283	\$10,443	\$11,487
Workers Comp	\$1,585	\$1,712	\$1,849	\$1,997	\$2,156	\$2,329
Med/Den/Life Ins	\$12,716	\$13,733	\$14,832	\$16,018	\$17,300	\$18,684
SUI	\$998	\$1,008	\$1,018	\$1,028	\$1,039	\$1,049
OPEB Unfunded	\$6,974	\$7,323	\$7,689	\$8,073	\$8,477	\$8,901
FICA	\$9,047	\$9,499	\$9,974	\$10,473	\$10,997	\$11,547
Insurance	\$0	\$0	\$0	\$0	\$0	\$0
Materials & Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Communications	\$0	\$0	\$0	\$0	\$0	\$0
Professional Services	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Public Services - Administration	\$165,856	\$175,075	\$184,896	\$194,977	\$205,785	\$216,998

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
City Attorney						
Professional Services	\$26,000	\$36,750	\$38,588	\$40,517	\$42,543	\$44,670
Subtotal City Attorney	\$26,000	\$36,750	\$38,588	\$40,517	\$42,543	\$44,670
Administration						
Professional Services	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Administration	\$0	\$0	\$0	\$0	\$0	\$0
Finance - Retiree Health Benefits						
Med/Den/Life Ins	\$32,117	\$34,686	\$37,461	\$40,458	\$43,695	\$47,190
Subtotal Finance - Retiree Health Benefits	\$32,117	\$34,686	\$37,461	\$40,458	\$43,695	\$47,190
Public Services - Facilities						
Design/Engineering	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Public Services - Facilities	\$0	\$0	\$0	\$0	\$0	\$0
Allocations, Transfers & Other Expenses						
OPEB Expense	\$0	\$0	\$0	\$0	\$0	\$0
Bad Debt Expense	\$0	\$0	\$0	\$0	\$0	\$0
Admin Cost Allocation	\$568,370	\$625,207	\$687,728	\$756,500	\$832,151	\$915,366
Fleet Maintenance	\$79,364	\$87,300	\$96,030	\$105,633	\$116,197	\$127,817
Engineer Costs	\$0	\$0	\$0	\$0	\$0	\$0
Safe Drinking Water	\$0	\$0	\$0	\$0	\$0	\$0
LPFA 2000 Refunding - Principal	\$0	\$0	\$0	\$0	\$0	\$0
Transfer Out	\$0	\$0	\$0	\$0	\$0	\$0
Transfer Out - OPEB	\$0	\$0	\$0	\$0	\$0	\$0
Transfer Out - City Hall	\$73,696	\$75,907	\$78,184	\$80,530	\$82,945	\$85,434
Transfer Out - Corp Yard	\$53,277	\$54,875	\$56,522	\$58,217	\$59,964	\$61,763
Subtotal Allocations, Transfers & Other Expenses	\$774,707	\$843,290	\$918,464	\$1,000,881	\$1,091,257	\$1,190,379
Total O&M Budget	\$10,920,169	\$11,455,949	\$12,017,303	\$12,609,722	\$13,243,317	\$13,867,355